European Commission

MOBILITY AND TRANSPORT

# Transport in the European Union

## Current Trends and Issues

March 2019


*Mobility and Transport*

# BACKGROUND INFORMATION

'Transport in the European Union – current trends and issues' is produced by the Directorate-General for Mobility and Transport (DG MOVE) of the European Commission for information puroposes and cannot be interpreted as an official position of the European Commission.

Any questions or suggestions relating to the analysis should be addressed to:

Rolf Diemer, Head of the Unit 'Economic analysis and Better regulation'
Florian Dittrich, European Semester coordinator in DG MOVE

European Commission, Directorate-General Mobility and Transport, B-1049 Brussels

Email: **Move-A3-Secretariat@ec.europa.eu**

*This report is published in English only.*

# Foreword

The freedom to live, work, study and do business in another country is one of the EU's fundamental freedoms. The EU population treasures this more than any other freedom achieved through EU integration – a recent Eurobarometer showed 82% of those surveyed supporting freedom of movement.

But this movement is complicated without good connectivity. Huge strides have been made in connecting Europe, allowing people, goods and services to travel within and across borders. But as the number of journeys has increased – in Europe and elsewhere – transport has also become a major contributor to climate change. Unless action is taken, transport risks becoming the largest source of emissions, overtaking energy, and jeopardising the EU's ability to meet its overall emission reduction goals.

The 2018 Commission communication 'A Clean Planet for all – A European long-term strategic vision for a prosperous, modern, competitive and climate neutral economy' sets out the action needed. It presents pathways for the EU to reach a net-zero emission economy in all sectors.

The EU transport sector is today at a crossroads, as this Panorama report conveys clearly. We now need policies appropriate for the 21st century to steer us in the right direction. They must address environmental challenges while unlocking transport's potential to contribute to growth and jobs in the EU. Policies should avoid curbing mobility, and must simultaneously address a range of social and economic challenges, such as working conditions and changing skills requirements.

As we seek to balance these different demands, the road ahead will not always be smooth. But I am confident that EU transport policy will chart a path that is good for mobility, good for the people of Europe, and good for the planet.

**Violeta Bulc**
Commissioner
Transport

Transport activity across Europe is high, and set to continue growing – estimates suggest that passenger transport will increase by 42% by 2050, and freight transport by 60%. This is good news for passengers and trade, but puts pressure on the transport network as well as the environment. A capacity crunch is already being felt in some sectors, generating heavy costs for ordinary travellers and businesses alike.

Solutions to this structural challenge must not divert us from against meeting our targets on greenhouse gas (GHG) emission reductions.

Capacity and climate change are not the only developments affecting transport. Since the last major revision of EU transport policy in with the 2011 White Paper, new socio-economic and technological developments have also emerged or become more prominent, such as the collaborative economy, digitalisation, big data, increasingly complex business structures and supply chains, and a shift to a circular economy.

These challenges are laid out in the second edition of this report, which I am pleased to present. Like its predecessor it provides an overview of the issues facing both the EU at large and its individual Member States. The report sets out the key trends and issues for the single European transport area, the development of a transport infrastructure network across EU countries, and the external costs of transport.

Today we are at a turning point. We cannot advance without the further optimisation of transport services and changes to the design of vehicles and infrastructure. I trust that reading this report will lead you to the same conclusion and motivate you to pursue the most pioneering and effective solutions so that we may advance.

**Henrik Hololei**
Director General
DG Mobility and Transport

# Table of Contents

# 1. Introduction

Transport is a fundamental sector for and of the economy. Transport services embrace a complex network of around 1.2 million private and public companies in the EU, employing around 11 million people[1] and providing goods and services to citizens and businesses in the EU and its trading partners. Transport also provides mobility for Europeans, thus contributing significantly to the free movement of persons within the internal market.

Efficient transport services and infrastructure are vital to exploiting the economic strengths of all regions of the European Union, to supporting the internal market and growth, and to enabling economic and social cohesion. They also influence trade competitiveness, as the availability, price, and quality of transport services have strong implications on production processes and the choice of trading partners. With such a central role, transport is by definition also inter-related with various policy areas, such as environmental and social policies.

The main **challenges** for the transport sector in the EU include creating a well-functioning Single European Transport Area, connecting Europe with modern, multi-modal and safe transport infrastructure networks, and shifting towards low-emission mobility, which also involves reducing other negative externalities of transport. From a social perspective, affordability, reliability and accessibility of transport are key. Addressing these challenges will help pursue sustainable growth in the EU.

Recently, the Commission has taken several initiatives to further foster the development of the **Single European Transport Area**. Progress towards this goal has been made, e.g. with:

- the 4th Railway Package;
- the Blue Belt initiatives for maritime transport;
- the proposed Single European Sky II;
- the EU Aviation Strategy;
- the NAIADES Programme for inland waterways.

The Commission seeks to address shortcomings, particularly in the **market integration of road transport**, through a set of initiatives for a **socially fair** transition towards **clean, competitive and connected mobility**, presented in its 2016 Low-emission Mobility Strategy and subsequently in three waves of legislative proposals, the so-called "Mobility Packages" (see also section 3):

- **Europe on the Move** - An agenda for a socially fair transition towards clean, competitive and connected mobility for all of 31 May 2017;[2]
- **Delivering on low-emission mobility** – A European Union that protects the planet, empowers its consumers and defends its industry and workers of 8 November 2017;[3]
- **Europe on the Move – Sustainable Mobility for Europe**: safe connected, and clean of 17 May 2018.[4]

The shift towards low-emission mobility was already an objective in the Transport White Paper of 2011 and was supported by various initiatives. The **European Strategy for Low-Emission Mobility**" highlights the areas on which Commission initiatives focus:

- digital mobility solutions;
- fair and efficient pricing in transport (which should better reflect negative externalities of transport);
- promotion of multi-modality;
- framework for alternative energy;
- roll-out of infrastructure for alternative fuels;
- interoperability and standardisation for electro-mobility;
- improvements in vehicle testing;
- post-2020 research and investment strategy for all means of road transport.[5]

[1] 'EU transport in figures' – DG MOVE statistical pocketbook 2017.

[2] COM(2017) 283.

[3] COM(2017) 675.

[4] COM(2018) 293.

Additionally, in 2018 a "**Multi-modal Year**" brought together relevant initiatives and events, including a 'European Single Window' in maritime transport. As part of the second Mobility Package, the Commission is proposing a revision of the Combined Transport Directive[6].

More details on the state of play of transport policies can be found in the 2016 White Paper implementation report[7], in the staff working document accompanying the Communication "Europe on the Move"[8] and in the Implementation report of the EU Maritime Transport Strategy 2009-2018[9].

To help EU countries develop the **Trans-European Transport Network (TEN-T Network)**, the EU adopted a Regulation in 2013 providing Union guidelines for transport investment. The Regulation establishes a legally binding obligation for the EU countries to develop the so-called "Core" and "Comprehensive" TEN-T Networks.

In addition, the Regulation identifies projects of common interest and specifies the requirements to be complied with in the implementation of such projects. The **Connecting Europe Facility (CEF)** Regulation[10], adopted in 2013, allocated a seven-year budget (2014-2020) of EUR 30.4 billion, of which EUR 24 billion are for the transport sector.

On 2 May 2018, the Commission proposed a new **long-term budget for the period 2021-2027**. The focus post-2020 remains on developing the Trans-European Network, with particular priority on cross-border sections and missing links of the TEN-T Core Network. The Core Network is planned to be completed by 2030.

The EU's long term goals regarding sustainability, competitiveness and inclusive growth require significant investments in new mobility models, renewable energies, energy efficiency, research and innovation, and digitalisation. Under the next long-term budget, a new programme 'Invest EU' will enable and incentivise these investments, notably with a sustainable infrastructure window.

The Commission proposes an effort on **research** – notably to **tackle the new mobility challenges linked with connected and autonomous mobility and zero-emission transport**. EUR 15 billion have been proposed for mobility, energy and climate in the Horizon Europe Programme post-2020.

On 28 November 2018, the Commission adopted a strategic **long-term vision for climate-neutral economy by 2050**[11], engaging all sectors of the economy and society, to achieve the transition to a climate-neutral economy. The **transport sector, being one of the main sources of GHG emissions in the economy will play a key role** in this transition.

These examples demonstrate the considerable **opportunities** provided by the European transport sector, but also the **challenges** it faces. This is true, not only for transport emission reductions, but also for the current situation of **disruptive changes in technology** (e.g. e-mobility) **and mobility patterns** (e.g. the sharing economy).

This report is structured as follows. Section 2 reviews the performance of EU countries in transport market functioning, infrastructure quality and the environmental impact of transport. Section 3 identifies levers to address the challenges and reviews the approach taken at EU level. Section 4 examines the state of play of existing policies and takes stock of where EU countries stand in implementing these policies. Section 5 provides key issues and performance indicators for each EU country.

[5] COM(2016) 501.

[6] COM(2017) 648.

[7] SWD(2016) 226.

[8] SWD(2017) 177.

[9] SWD(2016) 326.

[10] Regulation (EU) No 1316/2013 of the European Parliament and of the Council of 11 December 2013 establishing the Connecting Europe Facility, OJ L 348, 20.12.2013, amended by Regulation 2015/1017 on the European Fund for Strategic Investments, the European Investment Advisory Hub and the European Investment project Portal, OJ L169, 25.6.2015.

[11] COM(2018) 773 final.

# 2. Policy challenges: overview of performance in the EU countries

In the EU, the transport and storage sector accounts for more than 5% of total employment[12] and almost 5% of GDP.[13]

However, the share of women employed in the transport sector is low. According to the Eurostat Labour Force Survey, in most EU countries, women represent around 22% of the labour force in the transport sector (2017).

Some of the reasons, given by social partners, why women are underrepresented in the transport sector include:

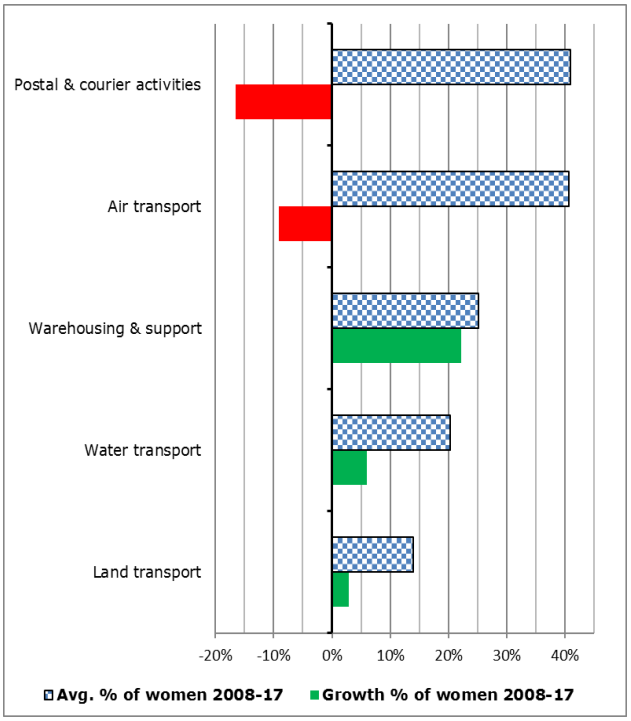
- a lack of appropriate work-life balance in shift work;
- workplace and equipment not being adapted (e.g. lack of sanitary facilities for women, safety clothing not available in female sizes);
- insufficient targeted recruiting of women in a sector that has the reputation of being dominated by men;
- a lack of training and life-long learning opportunities.

The European transport sector provides ample growth opportunities, but significant challenges remain to fully exploiting these opportunities. Given that transport and logistics represent a sizeable share of company costs and of households' expenditure, the provision of more efficient transport services and better logistics can affect citizens and businesses tangibly. For households in the EU, transport accounts for roughly 13% of their total final consumption. Improved infrastructure and optimised performance of multimodal logistic chains can help to reduce logistics costs.

[12] Eurostat Labour Force Survey, 2017 data, for NACE H: "Transportation and Storage", age 15-64.

[13] Eurostat National Accounts, 2016 data, for NACE H: "Transportation and Storage".

Figure 1: Share and growth of employment of women in the EU-28[14] transport sector (2008-2017)




Source: Eurostat Labour Force Survey.

For high-value added products and services produced in Europe, transport costs may not be a very significant proportion of total costs. However, the reliability of logistics is critical to the functioning of increasingly complex value chains. In order to seize transport-related growth opportunities and reduce costs related to transportation, a number of horizontal challenges need to be addressed. These can be grouped under three headings: market functioning, infrastructure and negative externalities.

## 2.1. Sub-optimal market functioning

The transport policies in the EU are characterised by divergent national priorities. **Fragmentation of the transport market** will continue to limit the quality of transport services in Europe and will leave growth potential untapped, unless European policy initiatives towards a Single Market for transport, such as the ones quoted in

[14] The countries covered by data in this report are the EU-28, unless otherwise specified.

the introduction, are thoroughly implemented at national level.

In addition, **gaps in the social legislation** related to transport and divergent national practices have led to deteriorating social conditions for transport workers and may also worsen the quality of transport services. Market opening and social cohesion are thus intrinsically linked.

**Rail transport** in particular has been struggling to achieve its potential. This is despite its comparative advantages (notably speed and comfort for passengers and economies of scale for freight) over medium to long distances and the significant contribution it can make to both the decarbonisation of transport and socially inclusive mobility. Rail transport consumes significantly less energy than transport over road, thanks to physical advantages such as the wheel-on-rail mechanism and air resistance. Such aspects translate to dramatically lower external costs for rail transport.

**Rail freight services** suffer from low quality and reliability. This is due to the lack of coordination in cross-border capacity offer, traffic management and planning of infrastructure works.

The creation of a **Single European Rail Area** requires major efforts to achieve technical interoperability and to ensure that rolling stock is able to run across national borders. In addition, standardisation of systems and equipment in its broader sense is crucial to gain efficiency and reduce costs. Specific EU legislation, such as the Technical Pillar of the 4th Railway Package, aims at promoting interoperability. The rules are implemented with the assistance of the European Union Agency for Railways (ERA).

The **lack of effective competition** may explain why in many EU countries rail transport has not developed customer-oriented services, innovative business models and costs/price reductions that can be witnessed after market opening in other transport modes. The degree of competition in the railway sector, measured as the total market share of all but the biggest railway companies, is low (see Figure 2). Although a low number of competitors may reflect the small size of a market, various barriers to entry still hamper the development of competition in rail.

The **rail freight market** has been fully open to competition since 2007. Between 2010 and 2016, the market shares of competitors continued to increase in most EU countries, most significantly in Belgium, Bulgaria, Czechia, Germany and Hungary. Exceptions to this growth trend were Estonia and France.

In the **rail passenger market**, the market shares of competitors are lower and less diverse, and also depend on the degree of liberalisation, which varies across countries. In most countries incumbent rail companies have control over 80% of the market, except for Poland (55%), Sweden (65%), Italy (75%) and the United Kingdom (where there is no incumbent). In 10 countries there were still no alternative operators in 2016.

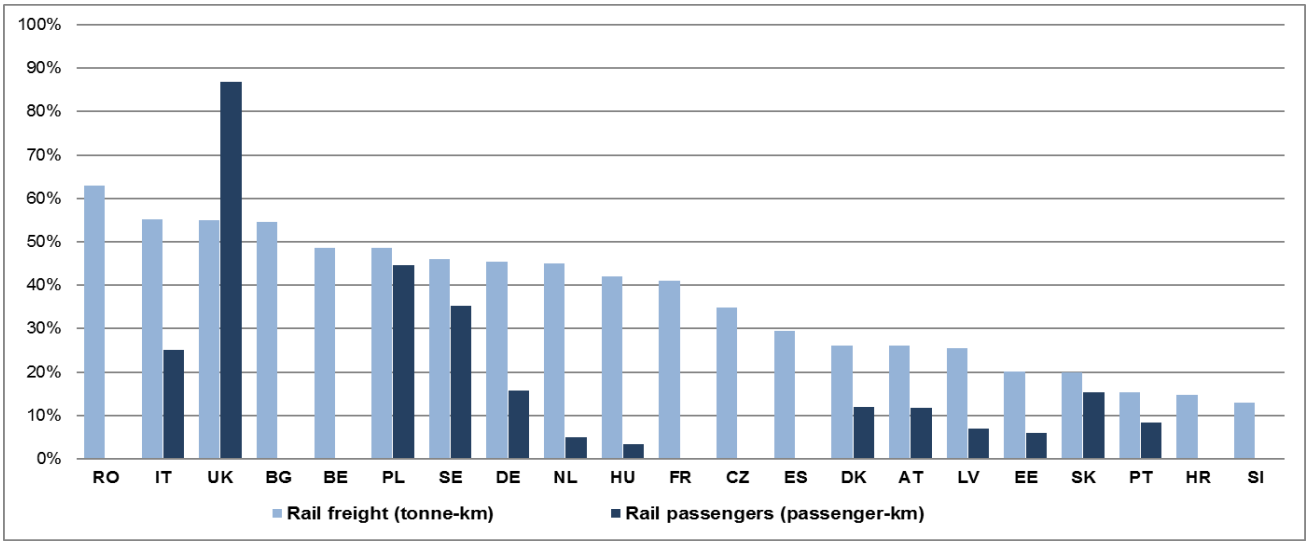
The 4th Railway Package is set to **complete the market opening process** by dismantling the remaining legal monopolies in domestic passenger markets. It introduces the principle of competitive tendering for public service contracts (PSCs) and improves the way infrastructure is governed to create a non-discriminatory environment. However, until the package is fully implemented, important challenges remain to be addressed on the ground.

Rail passenger market opening has been pursued by several EU countries in advance of the legal deadlines imposed by EU law, to different degrees and with varying results. New commercial (open access) services have been introduced in Czechia, Germany, Italy, Austria, Sweden and the United Kingdom. While the reasons for success or failure in operating a new rail business are diverse, a common trait is that, in the absence of safeguards against unfair practices, new entrants face serious obstacles.

In particular, **new commercial operators still face discrimination in obtaining access to rail infrastructure and essential service facilities**, such as stations and maintenance workshops, which are often owned and operated by incumbents. Incumbents may also engage in anti-competitive behaviour or rely on cross-subsidies to keep competitors out of the market.

In 2016, two thirds of all EU passenger rail services were provided under PSCs, particularly for regional and suburban traffic. This average hides significant differences across countries. In Denmark, Ireland, Greece, Croatia and Luxembourg, all passenger services are covered by PSCs. The use of competitive tenders for the award of these contracts is a key indicator of the degree of market opening. In the EU, the majority of PSCs are still awarded directly to incumbents. While the 4th Railway Package has introduced the principle of competitive tendering, it will take time (up to 2023) before the use of tenders is widespread.

Figure 2: Market share of all but the principal railway undertakings (2016)




Source: DG MOVE, Rail Market Monitoring Survey 2018, IRG Rail Annual Reports. Greece, Ireland, Lithuania, Luxembourg and Finland score 0 in both indicators. Passenger data: due to a methodological change in reporting, values are mostly estimated by DG MOVE. Not applicable to Cyprus and Malta.

In the **road transport** sector, the market for international (intra-EU) freight and passenger services has been entirely opened to competition, but domestic transport remains largely protected. On the **freight side**, "cabotage", i.e. domestic transport performed by foreign hauliers, is subject to restrictions. As a consequence, operators face difficulties in optimising their operations and one in two vehicles operating domestic transport outside of its country of registration runs empty.[15]

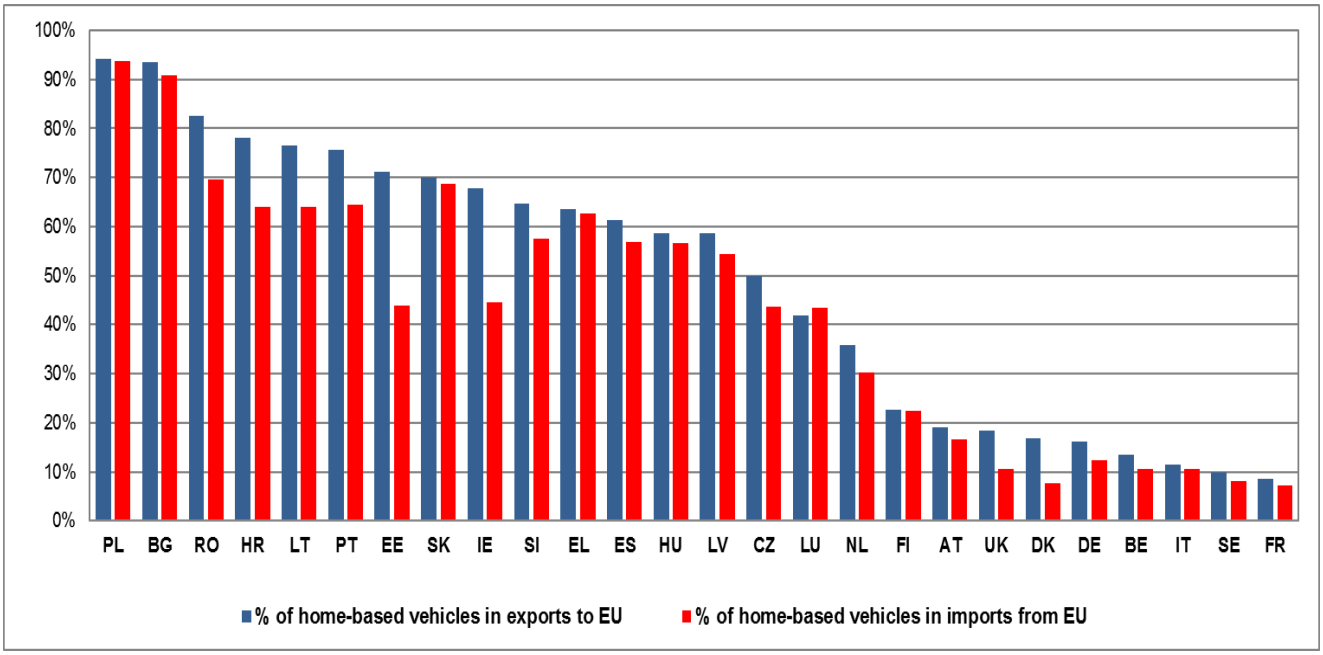
The performance of national hauliers can to some extent be compared by looking at the shares of home-based vehicles in exports and imports from other EU countries. Under certain conditions a similar distribution of the transport activities between hauliers from the importing and hauliers from the exporting country might be expected. In reality, however, this is rarely the case in the EU.

Hauliers from some of the new EU countries, e.g. Poland, Bulgaria, Croatia and Romania are largely dominating the transport operations in the external trade of their respective countries. This reflects low labour costs.

The relative competitiveness of hauliers from the countries that have joined the EU since 2004 also shows in their share in cross-trade (transport between two countries neither of which is the country of registration of the haulier): they account for 80% of all cross-trade in the EU. At the other end of the spectrum, hauliers from countries such as France, Sweden, Italy, Belgium and Germany appear to be less competitive and have a relatively low market share when it comes to carrying the exports and imports of their own economies. With a combined share of less than 2% in total activity, these countries are more or less absent from the cross-trade market.

[15] European Commission (2014), Report from the Commission to the European Parliament and the Council on the State of the Union Road Transport Market {COM(2014) 222}.

Figure 3: Share of home-based vehicles in tonne-km generated in exports to and imports from other EU countries (2017)




Source: Eurostat. Data for CY and MT are either not available or not reliable.

On the **passenger side**, access to the domestic market continues to be heavily restricted in several EU countries. They shield incumbent monopolists from competition. However, liberalisation of long-distance coach services has been progressing in various EU countries: Sweden in 2012, Germany in 2013, Italy in 2014 and France in 2015.

As part of the initiatives of the second wave of the mobility package, the Commission proposes a Directive on Access to Passenger and Coach Services. The main objective is to enhance the accessibility and competitiveness of inter-urban regular services and to further open this market.[16]

The liberalisation of the European **aviation market**, that celebrated its 25th anniversary in 2017, already benefited the aviation sector, as well as air passengers. One of the main problems affecting its performance is the fragmented EU airspace that leads to high operating costs for airlines, as it limits the optimisation of flight paths or duplicating costly functions. Full implementation of the Single European Sky (SES) is a constant challenge given the resistance from many EU countries, often driven by social concerns.

In addition, major European airports are likely to face a capacity crunch in the near future. It has been estimated that in the most likely scenario by 2040 there will be a surplus annual demand of some 1.5 million flights (8% of demand, 160 million people) which European airports will be unable to accommodate due to capacity shortages. France, Netherlands and the United Kingdom risk having the highest unaccommodated demand in 2040.[17] These two issues are seriously impeding the European aviation sector's ability to grow sustainably and compete internationally. The inability to grow and compete is causing congestion, delays and rising costs.

Challenges also include creating better market access and investment opportunities with non-EU

[16] Regulation (EC) No 1073/2009 of the European Parliament and of the Council of 21 October 2009 on common rules for access to the international market for coach and bus services, and amending Regulation (EC) No 561/2006, OJ L 300, 14.11.2009.

[17] Eurocontrol, European Aviation in 2040 - Challenges of Growth, June 2018.

countries and maintaining high EU safety, security and environmental standards. All of which are pre-requisites for a competitive aviation sector.

**Maritime transport** needs to overcome bottlenecks and act on administrative simplification, port capacity and efficiency, connection to the hinterland and access to financing. The lack of high-quality infrastructure or low-performing port services can result in significant extra costs for shippers, transport operators and consumers. For EU companies, port and terminal costs can represent up to 25% of the total door-to-door logistic cost. The "Ports Regulation" of 2017[18] introduces rules on transparent public funding to improve market access and make port investments and operations more efficient.

**Inland water transport** stands to lose its comparative advantage as an efficient, low external costs transport mode, unless long-term structural changes are made to improve the quality of its operating conditions. Suitable means include: investment in better infrastructure, skills, digitalisation and integration into the logistics chain. This requires both the definition of common standards at EU level and cross-border cooperation between EU countries, e.g. in the framework of the Danube Strategy.

Another common challenge of market functioning is to create conditions of **fair competition** between the various transport operators in a market that is not distorted by illegal state aid or by abuses related to the control over infrastructure.

State funding of regional airports is often needed to ensure territorial cohesion. However, undue distortion of competition in subsidising economically unviable airports must be avoided. Sustainable growth of airports and airlines requires full compliance with state aid rules. EU and non-EU air carriers benefit from equal access opportunities to the EU market. However, this is not always the case in non-EU countries.

As for maritime transport, the "Ports Regulation" requires that financial relations between public authorities and the port managing body, or any other entity that provides port services or dredging and receives public funds, must be reflected transparently in the accounting system. Thus, the risk of undue cross-subsidisation is reduced.

In rail, cases of (restructuring) aid and overcompensation of public service obligations are frequent. In addition, failure to separate infrastructure managers and service operators is not conducive to fair competition or efficient exploitation of the infrastructure.

The Commission monitors the functioning of **transport services for consumers** in the Consumer Markets Scoreboard, which ranks over 40 consumer markets. Results of the 2017 survey[19] show that train services continue to be perceived by the EU's consumers as one of the poorest performing service sectors (21st out of the 25 services markets surveyed in 2017), with a high incidence of problems.

The heterogeneity of EU countries' scores[20] is almost twice as high as observed for all services on average. Romania, Croatia, Bulgaria, Malta and Italy are at the bottom of the ranking.

While airline services are evaluated relatively well overall (4th place in the service markets ranking), a fifth of all cross-border complaints received by the network of European Consumer Centres relate to passenger or luggage transport by air.[21.] A Eurobarometer survey[22] on passenger rights in all modes of transport shows that the level of public awareness of air passengers (31%) has remained stable since 2005.

[18] Regulation (EU) 2017/352 of the European Parliament and of the Council of 15 February 2017 establishing a framework for the provision of port services and common rules on the financial transparency of ports, OJ L 57, 3.3.2017.

[19] Market Monitoring Survey 2017 published in the 2018 Consumer Markets Scoreboard.

[20] As measured by the standard deviation of the Market Performance Indicator (MPI).

[21] The European Consumer Centres Network 2017 Annual Report.

http://ec.europa.eu/consumers/ecc/docs/report_ecc-net_2013_en.pdf.

[22] Special Eurobarometer 420, December 2014.

Figure 4: Market Performance Index for three transport markets (2017)


Source: European Commission Consumer Markets Scoreboard 2018. The Market Performance Index indicates to what extent a given market brings the desired outcome to consumers. It is a composite index incorporating five key components: consumers' trust in retailers/providers, ease of comparing different offers, the extent of problems and detriment, expectations and choice. Each component is weighted according to the importance it was given by the respondent and the maximum total score is 100.

On **passengers with disabilities or with reduced mobility**, 81 % of those who requested assistance when travelling were satisfied with the assistance provided. The market for tram, local bus and metro services performs close to the service sector average (12th place).

On the **social dimension**, an ex-post evaluation of social legislation in road transport and its enforcement, carried out in 2015-2017[23], concluded that the current rules do not effectively and efficiently address the risks of deterioration in working conditions and distortions of competition. This is due to shortcomings in the legal framework. Certain rules are unclear, unsuitable or difficult to enforce. This results in differences in implementation between EU countries of the common rules and creates a risk of fragmentation of the internal market. As part of the "Mobility Packages", the rules are currently being clarified and revised. This should clarify minimum standards for social protection and pay of posted workers in the (road) transport sector.

In the maritime sector, there has been progress since the entry into force of the Directive incorporating the 2006 International Labour Organization Maritime Convention in EU law.[24] In aviation, the situation of highly mobile workers deserves attention. Whereas the Court has brought clarifications in its case law on the competent court and applicable law to employment contracts of mobile workers[25], including in aviation, the Commission is reflecting on follow-up action to ensure it is widely known and uniformly applied.

[23] https://ec.europa.eu/transport/sites/transport/files/facts-fundings/evaluations/doc/2016-ex-post-eval-road-transport-social-legislation-final-report.pdf

[24] Council Directive 2009/13/EC of 16 February 2009 implementing the Agreement concluded by the European Community Ship owners' Associations (ECSA) and the European Transport Workers' Federation (ETF) on the Maritime Labour Convention, 2006, OJ L 124, 20.5.2009.

[25] Judgment of 14 September 2017, *Sandra Nogueira and Others v Crewlink Ireland Ltd* and *Miguel José Moreno Osacar v Ryanair Designated Activity Company*, Joined cases C-168/16 and C-169/16.

## 2.2. Infrastructure deficiencies

Since the global economic crisis, the EU has been suffering from **low levels of investment in transport infrastructure**. This has held back modernisation of the EU's transport system. Collective and coordinated efforts at European and national levels, recently boosted by the Investment Plan for Europe, need to reverse this downward trend.

Government investment continues to remain low as a share of GDP in the EU, levelling out at 2.7% in 2016, the lowest level in 20 years. Generally, investment in infrastructure has halted its decline, but it is still at 20% below pre-crisis levels, thus slowing economic convergence. Total infrastructure investment appears to have stabilised at 1.8% of GDP, down from a peak of 2.2% in 2009, with transport infrastructure the most badly affected. The decline is strongest in countries with the lowest infrastructure quality, pointing to a slowdown in the convergence process.[26]

Infrastructure investment has been hit by fiscal consolidation that has been biased against capital expenditure, with prioritisation given to current expenditure such as social transfers. Some of the decline in public investment, including infrastructure, may be due to structural changes in the economy. However, in many countries the quality of existing infrastructure has declined with investment, pointing to outstanding needs.[27]

In particular the **Trans-European Transport network (TEN-T)** requires investment in new infrastructure, refurbishment and modernisation of the existing network. Better coordination is needed between EU countries on cross-border infrastructure projects.

While for some EU countries the main issue is to upgrade and maintain existing infrastructure, others need to develop or expand their transport network. The **availability and quality of transport infrastructure is particularly low in the Eastern part of the EU**. Renovation and upgrading of an otherwise extensive railway network is also a fairly common challenge there.

**Building missing links at borders between EU countries** and along key European routes, removing bottlenecks or interconnecting transport modes in terminals is vital for the Single Market and for connecting Europe with external markets and trade partners. The smooth functioning of the European network requires integration and interconnection of all modes of transport, including equipment for traffic management and innovative technologies.

**Road and rail infrastructure across the EU has been degrading because of too little maintenance.** Maintenance budgets have often experienced cuts and have not evolved in line with the increasing length of infrastructure and the ageing of crucial links. This has led to a worsening of the state of roads in many EU countries and has **generated higher risks of accidents, congestion, increased noise and a reduced service to society**.

The adaptation of infrastructure to new mobility patterns and the deployment of **infrastructure for clean, alternative fuels**, poses additional challenges that require new investments and a different approach to the design of networks and business models.

The European objective of a modal shift of freight transport to railways will require extensive upgrading of existing railway lines since very few dedicated freight railways are currently being built and existing lines were built for traffic demands at the time of construction. A transition to increased and enhanced railway freight operations can therefore be costly and complicated.[28]

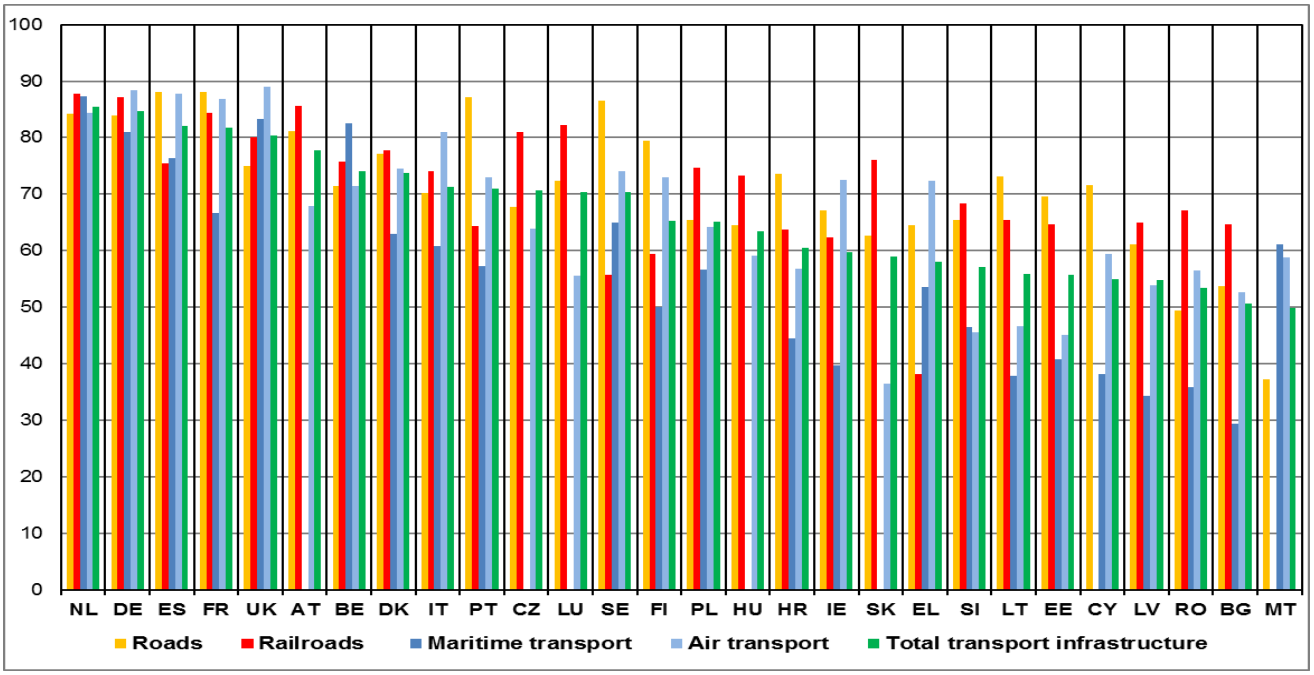
[26] EIB Investment Report 2017/2018: From recovery to sustainable growth - Key Findings, 23 November 2017: http://www.eib.org/en/infocentre/publications/all/investment-report-2017.htm. Infrastructure investment covers transport, communication, utilities, education and health.

[27] Idem.

[28] Björn Paulsson, Anders Ekberg and Lennart Elfgren: Upgrading of freight railways to meet operational and market demands / TRA2018, Vienna, Austria, April 16–19, 2018.

To address infrastructure bottlenecks on routes of key interest for the EU, suitable planning has to be put in place. Conditions have to be created to ensure **full absorption of funds earmarked in the Connecting Europe Facility** for rail projects in EU countries that are eligible for the Cohesion Fund. For instance, in the cases of the Baltic States and Poland, the Commission announced on 26 June 2017 almost half a billion euro for two projects on the global Rail Baltica project (EUR 110 million for the joint project by the consortium RB Rail, between Estonia, Latvia and Lithuania and EUR 338 million for the Białystok – Ełk line). In Greece, Spain, France, Italy and Portugal, further **improvement of port services and port hinterland connections** by rail (and/or inland waterways) is crucial. Rail investments to implement rail corridors and revitalise rail freight transport is a priority for Spain and Portugal.

Figure 5: Satisfaction with infrastructure quality (2018)




Source: World Economic Forum, The Global Competitiveness Report database 2018. Scale from 1 to 100 [best]. The countries were ranked on their overall performance on transport infrastructure. Note that after a change in methodology, the 2018 edition of the Global Competitiveness Report is of limited comparability to previous editions.

The upgrading and modernisation of infrastructures is needed in the **inland waterway network** of Belgium, Germany, France and the Netherlands. Investments in the navigability of the Danube, could remove significant bottlenecks in the EU transport network.[29]

In the light of a wave of **technological innovation and disruptive business models** (such as ride sharing), both the possibilities and demand for making transport safer, more efficient and sustainable have increased. Digital technologies help reduce human error. They can also create a truly multimodal transport system and spur social innovation. The market potential of **cooperative, connected and automated driving** is expected to lead to the creation of many new jobs.

**Cooperative intelligent transport systems (C-ITS)** allow road users and traffic managers to share information and use it to coordinate their actions. C-ITS are based on technologies which allow vehicles to "talk" to each other and to the transport infrastructure. In addition to what drivers can immediately see around them, all

[29] Cf. EU Rhine-Danube Corridor Work Plan, Danube Ministerial Declaration of June 2016.

parts of the transport system are able to share information.

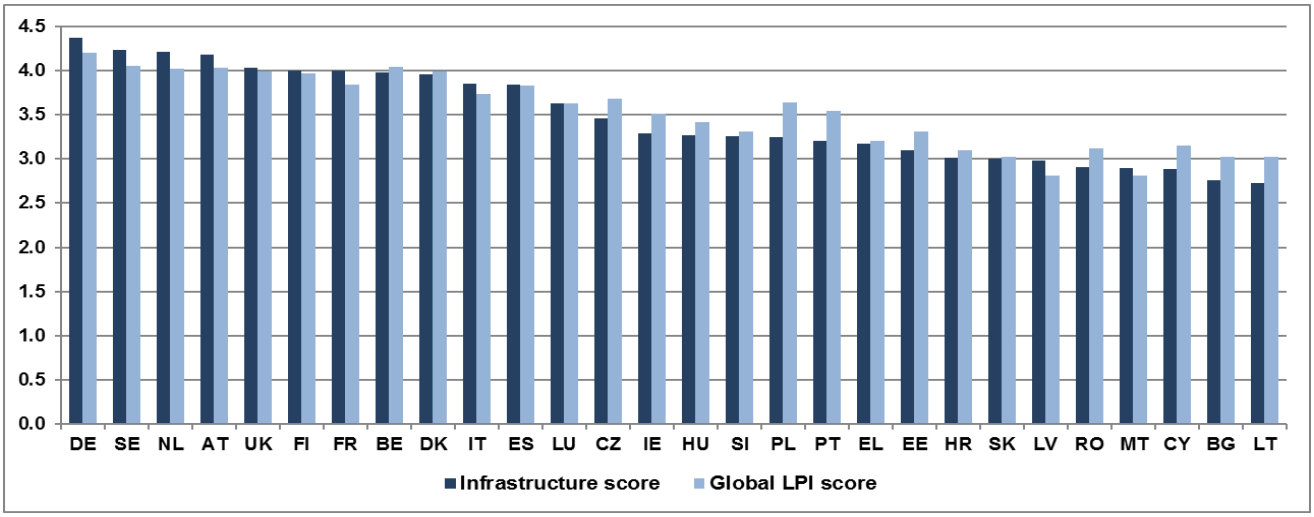
Communication between vehicles, infrastructure and other road users is also crucial to increase the safety of future automated vehicles and their full integration in the overall transport system.

Despite European initiatives, such as intelligent transport systems for road, the air traffic management system (SESAR) and the European Rail Traffic Management System (ERTMS), challenges emanate mainly from the fragmented deployment of C-ITS across EU countries. This creates barriers within the Single Market and can hamper the interoperability between different electronic systems and technological standards.

The deployment of intelligent transport systems for road and its interface with other modes varies across Europe. Yet, there are a number of common priorities and initiatives for collaboration among EU countries. Further commitment of all EU countries to the deployment of continuous and interoperable intelligent transport systems will be vital for fully exploiting the benefits that it can bring to the Single Market and the common transport area including economic and environmental benefits.

Given the regional specificities and differences in transport patterns, a possible indicator to compare the situation among the EU countries is the **index of satisfaction with transport infrastructure quality**. It is produced by the World Economic Forum for its Global Competitiveness Report based on interviews with business managers (see Figure 5). For 2018, the results for the overall transport infrastructure show an almost clear cut divide between the better performing countries that were already members of the EU in 2004 and those that joined since then, with the notable of exception of well-performing Czechia.

Figure 6: Infrastructure quality under Logistics Performance Indicator (2018)




Source: World Bank Logistic Performance Index. The scores demonstrate comparative performance (lowest score to highest score) from 1 to 5.

Analysis of the World Bank **logistics performance index**[30] (see Figure 6) shows a slightly different ranking, but the overall picture is similar. One of the components of this composite index is the quality of trade and transport-related infrastructure (e.g. ports, railroads, roads, information technology). The index is again the lowest for Bulgaria and

[30] The logistics performance index (LPI) is the weighted average of the country scores on the six key dimensions: efficiency of the clearance process, quality of trade and transport related infrastructure, ease of arranging competitively priced shipments, competence and quality of logistics services, ability to track and trace consignments, timeliness of shipments in reaching their destination within the scheduled or expected delivery time. The LPI consists of both qualitative and quantitative measures.

Lithuania. Cyprus, Malta and Romania do not score much better. The best performing European countries are Germany, Sweden and the Netherlands.

It is worth adding that concerning the global logistics performance index, 23 EU countries are ranked in the top 50 out of the 160 countries compared by the World Bank.

## 2.3. Low-emission mobility and negative externalities

The **main external costs of transport are those linked to greenhouse gas emissions, local air pollution, congestion, capacity bottlenecks, accidents and noise**. In particular, the significant impact of transport on energy use and climate change has to be addressed. In 2016, at least 33% of the final energy consumption and 24% of greenhouse gas emissions (26% more greenhouse gas emissions than in 1990) in the EU stemmed from transport.[31]

**Final energy consumption** in transport[32] decreased between 2005 and 2016 due to both the improvements in the energy efficiency of passenger cars and to the economic crisis. The latter led to a stabilisation of passenger traffic and a decrease in freight traffic.

Under the adopted policies, the **declining trend in emissions (since 2007)** from transport is expected to continue until 2030 (-12% for 2005-2030)[33]. The main drivers are fuel efficiency gains. They are encouraged by $CO_2$ standards for light duty vehicles, increasing fossil fuel prices over time, and the use of less $CO_2$-intensive fuels. However, greater efforts will be needed after 2020 if the global targets to reduce greenhouse gas emissions are to be met. The European Environment Agency has pointed out that from 2013 to 2016, total greenhouse gas emissions from road transport have increased by 5%, against the otherwise declining trend.[34] It is expected that the **cost of air pollution from road transport** will remain high, due to congestion and an expected growing demand for transport. Thus, the current transport system might not be sustainable.

$CO_2$ emissions and air pollution from transport are the major environmental concerns related to transport activity. The levels of **$CO_2$ emissions are difficult to attribute to specific countries**. They are calculated on the basis of fuels sold and do not correspond to the transport activity performed within the countries' borders. This leads to biased values especially for transit countries. In the case of maritime or air transport there are additional issues with attributing territoriality for emissions for the parts of the journeys taking place over a given territory.

Unlike other sectors, **aviation emissions** are forecast to increase as air traffic increases in Europe and worldwide.[35] According to the Intergovernmental Panel on Climate Change (IPCC), aviation (domestic and international) accounts for approximately 2% of global $CO_2$ emissions produced by human activity. International aviation is responsible for approximately 1.3% of the lobal $CO_2$ emissions. The European Parliament reports that emissions will be seven times higher in 2050 than in 1990.[36] The aviation industry has made some progress in addressing the sector's impact on the environment and intends to continue doing so through a basket of technological, operational and market-based measures. However, it can be questioned whether these measures are sufficient to keep pace with the growth of traffic.

The Member States of the International Civil Aviation Organization (ICAO) adopted Resolution A39-3[37], aiming to introduce a global market-

[31] Source: European Commission, *EU Transport in Figures*, Statistical Pocketbook 2018.

[32] Excluding pipeline transport.

[33] EU Reference scenario 2016, based on the PRIMES-TREMOVE transport model developed by E3M-Lab (ICCS/NTUA).

[34] EEA Report 5/2018: Annual European Union greenhouse gas inventory 1990–2016 and inventory report 2018, 27 May 2018.

[35] Eurocontrol, European Aviation in 2040 - Challenges of Growth, June 2018.

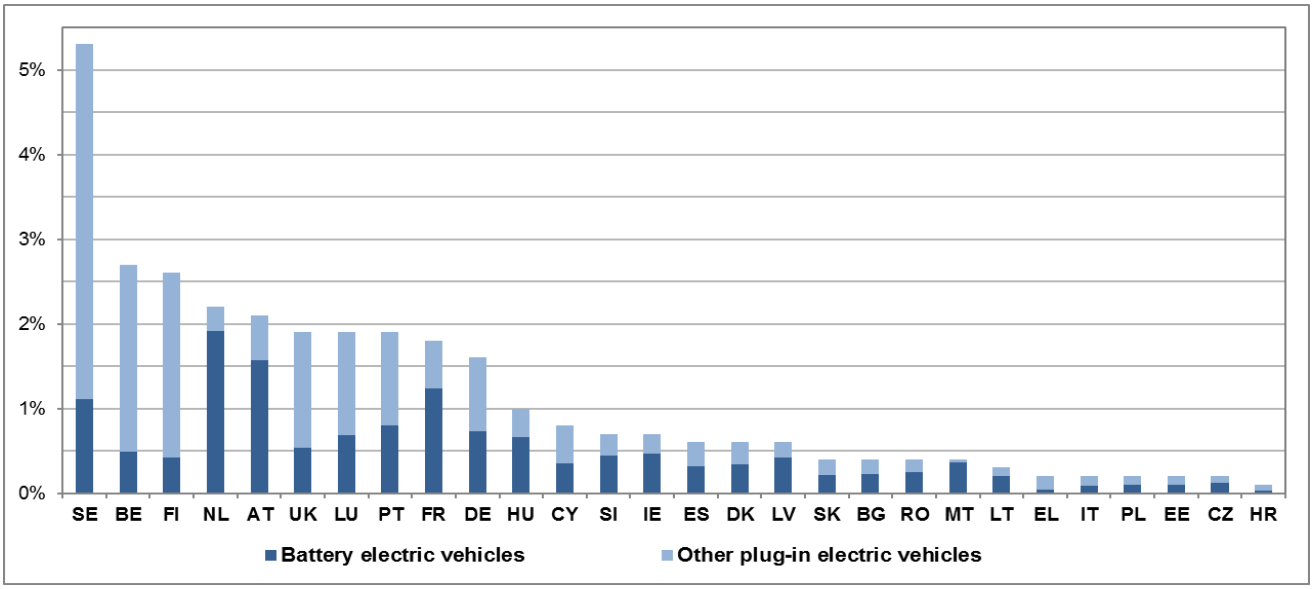
[36] EEA, EASA and Eurocontrol (2016), European Aviation Environmental Report 2016.

[37] https://www.icao.int/environmental-protection/CORSIA/Documents/Resolution_A39_3.pdf

based measure, namely the **'Carbon Offsetting and Reduction Scheme for International Aviation' (CORSIA)**, to offset international aviation's $CO_2$ emissions above 2020 levels through international credits. CORSIA will start its monitoring phase as from 2019.

The **shift to alternative fuels vehicles** varies substantially across EU countries, although there is a general positive trend. The share of plug-in electric vehicles (PEV) in new passenger car registrations indicates the progress in deployment of electric cars. In 2017, according to the European Alternative Fuels Observatory, Sweden was leading, mainly owing to a large number of newly registered plug-in hybrid vehicles (PHEV) that represented around 4% of the new registrations of passenger vehicles. Sweden was followed by Belgium and Finland. The Netherlands and Austria have the highest share of battery electric vehicles (BEV) in new registrations. The lowest shares are held by Poland, Estonia, Czechia and Croatia with 0.1% share of PEVs in new registrations of passenger cars.

Figure 7: PEV market share in new passenger cars (M1) registrations (2017)




Source: European Alternative Fuels Observatory.

Substantial societal and economic costs of transport are related to **unsatisfactory safety in road transport**. Despite a positive trend in the past years, in 2016, 25 500 people lost their lives on EU roads and a further 135 000 people were seriously injured.[38] Until 2013, the overall trend was close to the reference scenario of halving the number of fatalities in 2020 compared to 2010, but data on the last four years indicates stagnation or little improvement.

The societal cost of road accidents is very high, especially taking into consideration that apart from road deaths, accidents also cause thousands of slight and serious injuries every year. For every death on Europe's roads there are an estimated 4 permanently disabling injuries, such as damage to the brain or spinal cord, 8 serious injuries and 50 minor injuries. The external costs of road accidents were estimated at 1.7% of GDP for 2008[39].

**Congestion** has to be dealt with urgently, considering the expected growth in transport demand. The indicator produced by the Joint Research Centre to evaluate the congestion level, measures hours spent by cars in road congestion

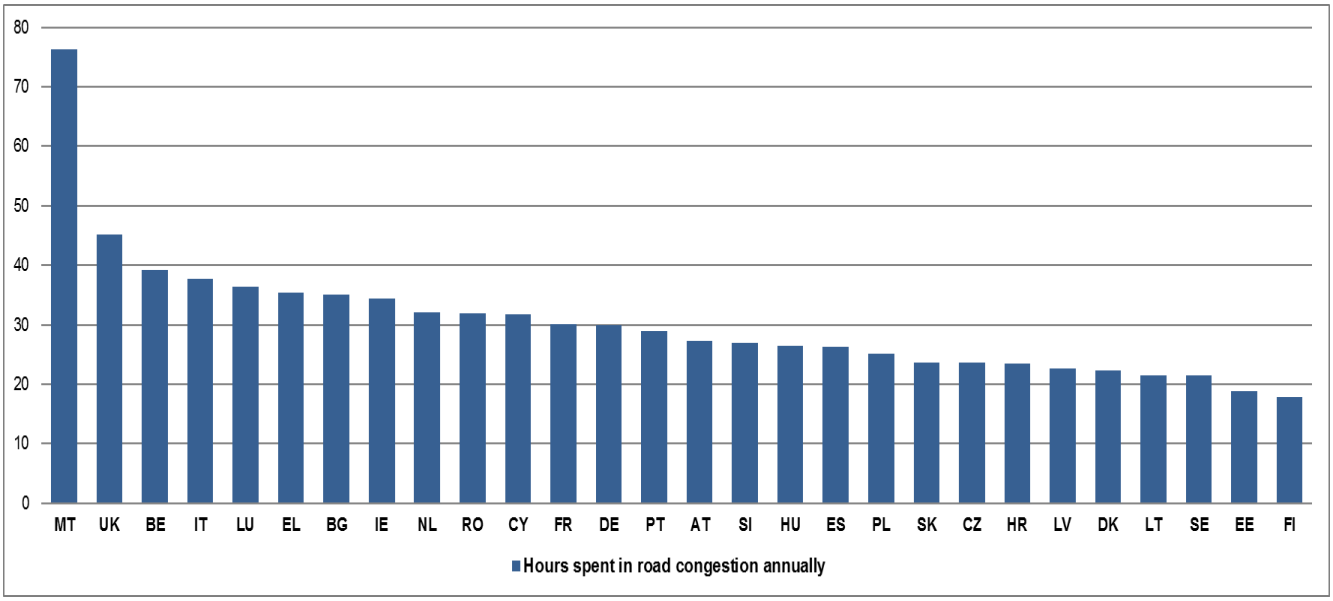
[38] CARE (EU road accidents database) or national publications.

[39] CE Delft, Infras, Fraunhofer ISI, External Costs of Transport in Europe - Update Study for 2008, Delft, CE Delft, September 2011.

every year. The countries with the highest congestion levels are Malta, the United Kingdom, Belgium, Italy and Luxembourg (see figure 8).

Bearing in mind that current budgetary limitations do not allow for substantial investments, there is still scope for improvement in the way the existing infrastructure is actually used. A tool for fostering a more efficient use of roads is **time-differentiated congestion charging**. However, its application on EU roads today is marginal. Only five cities impose a congestion charge for accessing the city centres. On interurban roads, time-differentiated charges are applied to all vehicles only on a handful of short stretches of motorways in France and Spain, as well as on one motorway stretch in the United Kingdom. Czechia also charges a higher toll on Friday evenings, but it applies only to heavy goods vehicles. While these schemes have proven to be effective in limiting peak-hour congestion, their coverage is insufficient to reduce the overall burden of congestion in the EU.

Figure 8: Average annual hours spent in congestion per vehicle (2018)




Data source: European Commission, Joint Research Centre, based on TomTom data. Data for Cyprus include Nicosia agglomeration on both sides of the demarcation line. For methodological reasons, the data for Malta are of limited comparability with the ones for the other countries studied.

# 3. IDENTIFICATION OF POLICY LEVERS TO ADDRESS THE CHALLENGES

Addressing the gaps in the Single European **Transport Area** is expected to improve transport services in Europe. As such it constitutes a prime policy lever for addressing the identified challenges. Studies suggest that for **rail transport** it primarily means:

- completing market opening;
- introducing the principle of competition for public service contracts;
- ensuring non-discriminatory access to infrastructure;
- reducing technical and regulatory barriers for market entry;
- implementing the single signalling system;
- introducing common passenger rights with fewer national exemptions;
- harmonising of technical standards across Europe;
- and fair working conditions.[40]

[40] EPRS (2014) The Cost of Non- Europe in the Single Market in Transport and Tourism. I - Road transport and railways.

The **4th Railway Package** of 2016 aims to open up the market for rail passenger transport services. It establishes open access rights for railway companies in the EU from 2020 and lays down the principle of competitive awards for public service contracts. The policy focus will now have to be on effective enforcement of market opening and competition generation based on sectoral legislations and competition policy instruments.

For **road transport**, measures could include:

- completing market opening;
- better enforcing existing rules;
- setting common vehicle standards;
- addressing road charging systems and technologies;
- making greater efforts for road safety;
- and addressing environmental sustainability and passenger rights issues.[41]

In connection with to its Communication "**Europe on the Move**" of 31 May 2017, the Commission has tabled a series of legislative proposals (so-called first "Mobility Package") the revision of the rules on access to the road haulage market, improved social legislation for road transport and a revision of the road charging rules.

On **social issues**, the Commission has launched initiatives to improve working conditions in road transport. This includes a proposal[42] to clarify the application of EU rules on the posting of workers to the road transport sector.

On 8 November 2017, the Commission adopted a second set of proposals (second "Mobility Package"). They respond to the challenge of making mobility clean, competitive and connected through a combination of demand- and supply-side measures on low-emission mobility. In concrete terms, the proposals encompass a number of measures with the aim to enable a transition towards low and zero emission mobility, such as a reform of the Clean Vehicles Directive, new $CO_2$ standards for cars and vans, or a follow-up to the Action Plan related to the Alternative Fuels Directive.

The third "Mobility Package" completes the process initiated with the 2016 Low Emission Mobility Strategy, including initiatives on connected and automated mobility, $CO_2$ standards for trucks, an Action Plan for Batteries and initiatives establishing a digital environment for information exchange in transport.

Following the successful liberalisation of **air transport** that has benefited EU consumers and businesses[43], action should now focus on:

- completing the Single European Sky;
- ensuring the highest levels of safety and security;
- supporting the creation of high quality jobs in aviation;
- protecting passenger rights;
- making the best use of innovation and digital technologies;
- addressing the risk of capacity shortage;
- and ensuring aviation's contribution to a resilient Energy Union and climate change mitigation.

According to the International Transport Forum, **maritime transport** would benefit from:

- tackling direct state aid to terminal managers and maritime companies;
- liberalisation and transparency of port services;
- involvement of non-European ports in Motorways of the Seas;
- and proper emission taxation.[44]

The establishment of a **European Maritime Single Window** environment, endorsed by EU countries in the "Valletta Declaration" in 2017, is central to simplifying and harmonising reporting formalities, reducing administrative and custom

[41] Ibid.

[42] COM(2017) 278.

[43] International Transport Forum Discussion Paper (2015/04), EU Air Transport Liberalisation Process, Impacts and Future Considerations.

[44] Ibid.

costs, and taking full advantage of digital means to optimise logistic chains.

**Inland waterway transport** requires policies addressing administrative and regulatory barriers, unused capacity and environmental externalities.[45]

The quality and capacity of transport **infrastructure** will have to be improved to handle the expected growth in passenger and goods mobility. Given the likelihood that public funds will be limited, **increased investment from the private sector in strategic transport infrastructure** will be essential.[46]

**Investment levels in infrastructure have been low since the financial crisis of 2008**. The cost of developing transport infrastructure in the EU is estimated at over EUR 1.5 trillion for 2010-2030. Completion of the **TEN-T Core Network** alone will require about EUR 500 billion until 2030. This compares with total investment of EUR 859 billion in transport infrastructure from 2000 to 2006.[47] It is estimated that the completion of the TEN-T Core Network could spur the economy. It would create 1.8 % additional GDP in 2030 compared to 2015 and 10 million jobs.[48]

In 2017, the Commission agreed to invest EUR 2.7 billion in 152 key transport projects[49] that support **competitive, clean and connected mobility in Europe**. Through this investment, the Commission is delivering on its Investment Plan for Europe and on Europe's connectivity, including the agenda set out in the Communication "Europe on the Move".

Selected projects are mostly concentrated on the **strategic sections of Europe's Transport Network (the TEN-T Core Network)** to ensure the highest EU added-value and impact. The largest part of the funding will be devoted to:

- developing the European rail network (EUR 1.8 billion);
- decarbonising and upgrading road transport and developing intelligent transport systems (EUR 359.2 million);
- deploying air traffic management (ATM) systems (EUR 311.3 million).

This investment is made under the **Connecting Europe Facility (CEF)**, the EU's financial mechanism supporting infrastructure networks. Over the period 2014-2020, it will unlock EUR 41.6 billion of public and private financing. The Commission is allocating EUR 11.3 billion from the CEF budget of the Cohesion Fund for the eligible 15 EU countries to further improve their infrastructure and to reduce differences between countries. For 2014-2020, these 15 eligible EU countries are: Bulgaria, Czechia, Estonia, Greece, Croatia, Hungary, Cyprus, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia and Slovenia.

The proposed **long-term budget for the EU for the period 2021-2027** includes EUR 30.6 billion for the transport envelope of CEF. This includes an unchanged cohesion envelope. The focus remains on developing the TEN-T Network, digitalisation, and decarbonisation, for instance by investing in **alternative fuels** infrastructure.

An important novelty compared to the previous CEF funding period is that EUR 6.5 billion will be dedicated to adapting the TEN-T Network to **military mobility requirements** to enable a **civilian-military dual-use** of the infrastructure.

Policies should take into account the fact that **EU countries have different infrastructure needs**. Increased investment in this field should consider the investment patterns before and after the recent financial crisis. Policies that promote **spending in transport infrastructure encourage growth**, provided they do not create

---

[45] Ibid.

[46] OECD (2011), Strategic Transport Infrastructure Needs to 2030, Main Findings.

[47] Report from the Commission to the European Parliament and the Council, on financial instruments supported by general budget according to Art 140.8 of the Financial Regulation as of 31 December 2015.

[48] Fraunhofer ISI (2015), Cost of non-completion of the TEN-T. http://ec.europa.eu/transport/themes/infrastructure/studies/doc/2015-06-fraunhofer-cost-of-non-completion-of-the-ten-t.pdf

[49] European Commission - Fact Sheet Connecting Europe Facility – Results of the 2016 Transport calls for proposals. http://europa.eu/rapid/press-release_MEMO-17-1731_en.htm

excess capacity. Providing too much infrastructure has been shown to create inefficiencies by diverting resources away from more productive investments.[50] However, EU countries in which the stock of infrastructure is low, or that have suffered from underinvestment, could certainly benefit from higher infrastructure investment. Efforts also have to be made to complete the multi-modal Core Network, which is the central part of the trans-European transport network policy.[51]

There should be **more focus in all EU countries on developing and deploying innovative infrastructure technologies and elements**. This will improve both a demand-based and sustainable provision of transport services and individual mobility. Based on the Commission's **intelligent transport systems (ITS) action plan** of 2008, a dedicated legal framework was established with the entry into force of the ITS Directive in 2010.[52] This framework supports the harmonised deployment in the EU of ITS solutions in road transport.

In 2016, the Commission presented a European strategy for the coordinated deployment of **cooperative intelligent transport systems (C-ITS)**[53] to avoid a fragmented Single Market for cooperative transport and connected and automated driving. The strategy recommends actions to create synergies between different initiatives and improve interoperability. It also addresses the most critical issues, including cyber-security and data protection. More recently, the "Europe on the Move" Communication (2017) highlighted the role of C-ITS in enabling cooperative, connected and automated mobility.

Under the **Horizon 2020** work programme 2016-2017, a dedicated call was launched for project proposals on **automated road transport**.

Furthermore, policies applying the "user pays" and "polluter pays" principles and monetary incentives to users, consumers and businesses, could help to reduce the **environmental impact** and **internalise the external costs** of transport.[54] The Commission will come forward with a study on the internalisation of external costs from transport activities in 2019.

**Infrastructure charging and taxes combined with innovative mechanisms to promote the financing of infrastructure for sustainable transport**[55] can address the budgetary constraints for infrastructure maintenance and shape the mobility patterns and freight flows.[56] Notably in road transport, a greater application of efficiently organised distance-based charges for road usage would create regular revenue streams for sustainable and efficient long-term maintenance and development of the network.

Greater use of the possibility to charge for external costs would help to apply the "polluter pays" principle. However, the current **infrastructure charging and transport taxation schemes differ substantially among EU countries**, possibly creating **market distortions and inefficiencies**. The systems in place also treat some modes and fuels in a preferential way, leading to unsustainable mobility choices.

Since the **highest share of $CO_2$ emissions in transport comes from the road sector**, it is also the area where EU countries have made the most effort to mitigate this impact. However, they often apply different approaches. There is a need to provide consistent incentives to users to promote the most energy efficient lorries. An effective way would be to **differentiate tolls according to the $CO_2$ performance of lorries**.

[50] European Commission (2014), Infrastructure in the EU: Developments and Impact on Growth, Occasional Papers 203.

[51] Fraunhofer ISI (2015), Cost of non-completion of the TEN-T.

[52] Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport, OJ L 207, 6.8.2010.

[53] COM(2016) 766 of 30.11.2016.

[54] CE Delft (2008), Road infrastructure cost and revenue in Europe.

[55] E.g. mark-ups applied on road charges.

[56] OECD (2007), Transport Infrastructure Charges and Capacity Choice. Self-Financing Road Maintenance and Construction, Round Table 135.

Other measures besides taxation that can address negative externalities consist in:

- deploying clean fuels for transport;
- deploying intelligent transport systems;
- setting efficiency standards for vehicles;
- sharing best practices (including eco-driving);
- and encouraging the use of more energy efficient transport modes, in particular collective transport.

These measures have been reiterated in the Communications "A European Strategy for Low-Emission Mobility"[57] and "Europe on the Move".

As part of the Mobility Packages, as mentioned above, the Commission proposes **new $CO_2$ standards for cars and vans[58] as well as for trucks after 2020[59],** which will help Member States to achieve their 2030 climate and energy targets. The package also includes a **revision of the Clean Vehicles Directive[60]** which will help to stimulate additional public demand for these vehicles in the EU. Finally, the packages contain an **Action Plan to boost investment in alternative fuel infrastructure[61]** and develop a network of fast and interoperable recharging and fuelling stations across the Union.

In the **maritime sector**, environmentally differentiated port charges can stimulate investments in greener vessels.

# 4. Examination of policy state of play

## 4.1. Market access policies

The **Single European Transport Area**, as envisaged by the Commission, addresses the market functioning issues by opening the transport sector to competition. This does not exclude the need for action at national level. The EU economy would benefit from a lowering of market entry barriers and a reduction of the regulatory burden in transport markets.

Despite some progress, **legal barriers to market entry** persist in transport sectors in most EU countries. The latest OECD product market regulation data (see Figure 9) which estimates the restrictiveness of market regulations shows that the **situation has improved in air passenger transport** in almost all countries for which data are available. It remained broadly **unchanged for road freight**[62] compared to 2008. **Rail transport remains the sector with the most restrictive regulations**: administrative, technical and regulatory burdens are still present in most EU countries.[63]

A good example of the **positive impacts of deregulation can be found on the long-distance coach market**, where various countries have opened their markets (Sweden in 2012, Germany in 2013, Italy in 2014 and France in 2015). Positive developments are already visible, especially in Germany, where coach travellers doubled to 16 million a year after the market opening (all but 4 million on domestic routes) and accounted for 11 % of the public-transport market. Cross-border travel has also surged as a result.

Despite some progress, the **implementation of the functional airspace blocks is still not satisfactory** in most of the EU countries. There are still infringement procedures against 21 Member States participating in six of the nine functional airspace blocks. The procedures concern lack of optimal provision of navigation services and the use of airspace (Bulgaria, Denmark, Estonia, Latvia, Romania, Finland and Sweden excluded).

[57] COM(2016) 501.

[58] COM(2017) 676.

[59] COM(2018) 284.

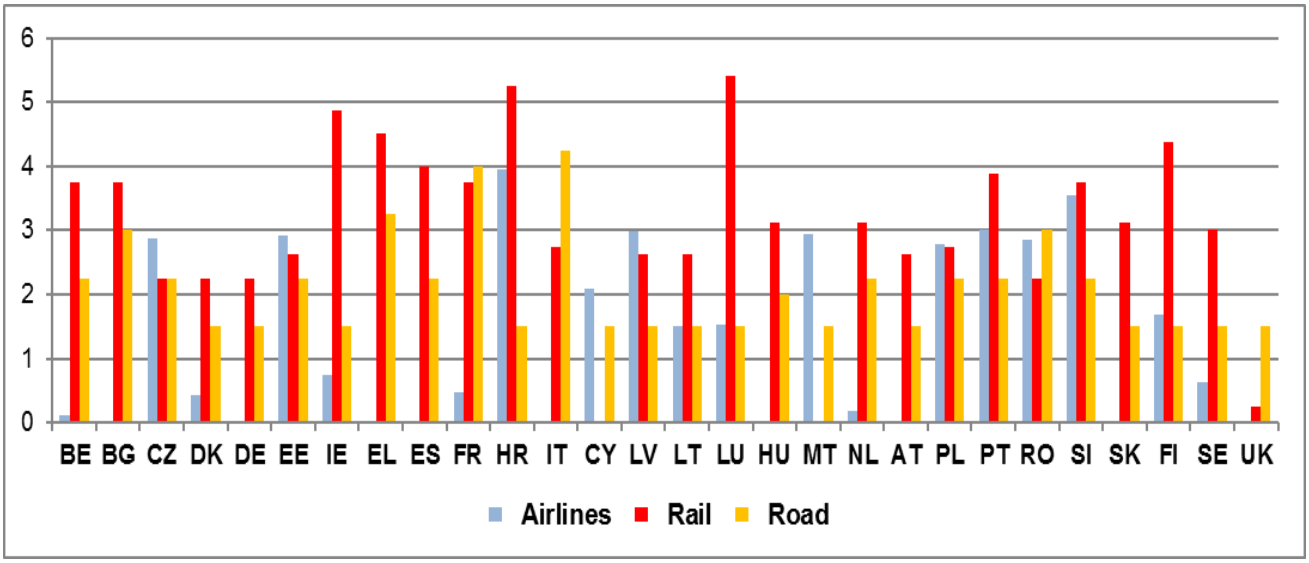
[60] COM(2017) 653.

[61] COM(2017) 652.

[62] The OECD data do not indicate any improvement of the situation in the road freight sector following the adoption of Regulation (EC) No 1072/2009 on common rules for access to the international road haulage market, OJ L 300, 14.11.2009.

[63] OECD (2013), Product Market Regulation Database.

Figure 9: Sector regulation - air passenger, rail and road freight transport (2013)




Data source: OECD (2013), Product Market Regulation Database. www.oecd.org/economy/pmr
The regulatory and market conditions are broken down into various categories with equal weights (entry regulation and price controls for road freight; entry regulation and public ownership for air passenger transport; entry regulation, public ownership, vertical integration and market structure for rail). Low values indicate light regulatory burden (index scale of 0 - 6 from least to most restrictive). Bulgaria, Germany, Greece, Spain, Italy, Hungary, Austria, Slovakia and the United Kingdom score 0 for air passenger transport. The countries were ranked on their average performance for the three sectors.

## 4.2. Investment in transport infrastructure

The **level of investment in transport infrastructure** and maintenance is difficult to compare between EU countries due to non-harmonised and incomplete reporting. Besides, it has to be matched with the actual investment needs. The latest OECD data (2016) indicate that investment levels in most countries remain low. Most EU countries have a share of total transport infrastructure investment **below 1% of GDP**[64]. It is a safe assumption that this does not cover the investment needs (also due to the maintenance requirements) in most countries.

The **Connecting Europe Facility, the European Fund for Strategic Investments and cohesion policy (through the Cohesion Fund and the European Regional Development Fund)** intend to address these budgetary deficiencies. They help in constructing the TEN-T core transport network and support infrastructure projects of high economic importance and relevance for the internal market. However, EU countries will still need to develop infrastructure for the last leg of the network which is critical for the incorporation of large infrastructure projects in the local transport systems.

The **length of the Trans-European Core road network,** completed at the end of every year, compared to the total road network, including planned sections and sections to be upgraded, can give a rough indication of progress in trans-European transport network policies in EU countries. While for some countries the investments have already been completed (Spain, Portugal, Slovenia, the United Kingdom), others still have a lot to do. This concerns mainly Central and Eastern European countries, and in particular Estonia, Lithuania, Poland, Slovakia and Romania[65].

The analysis of the 2014 national reports on the implementation of the Intelligent Transport

[64] OECD 2018. https://stats.oecd.org/Index.aspx?DataSetCode=ITF_INV-MTN_DATA.

[65] TENtec 2013. http://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/site/index_en.htm.

Systems Directive[66] demonstrates the strong and constant involvement of most EU countries in **intelligent traffic management and information systems**. These allow for a better use of the infrastructure, in particular through better use of road, traffic and travel data and the development of new intelligent transport services for traffic and freight management. In addition, new **open data strategies for transport** (e.g. in the United Kingdom) or the use of **crowd-sourcing** (e.g. travel-time information in Finland) have led to significant changes and the development of new services.

The national reports also highlight a growing trend towards more **cooperative intelligent transport systems and driverless piloting activities** in EU countries (e.g. France, Germany, the Netherlands, Austria, Finland, Sweden and the United Kingdom).

Although significant investments have been made into intelligent road transport systems, monitoring and evaluating their impact in the EU countries continues to be fragmented. Pan-European consolidation is insufficient.

## 4.3. Promoting a shift to low-emission mobility and tackling negative externalities

EU countries offer various **incentives to promote the deployment of electric vehicles**, such as purchase subsidies, registration tax benefits, ownership tax benefits, company tax benefits, VAT and other financial benefits, local incentives and infrastructure incentives. In most countries there is a clear relationship between the incentives offered and an increase in the number of plug-in electric vehicles. Unsurprisingly, in countries where there are no incentives available, there is a low propensity to buy electric cars[67].

The introduction of **schemes to internalise the external cost of transport**, implying a broader application of the "polluter pays" principle, needs to be promoted and encouraged in all EU countries. The Commission has launched a comprehensive study "Sustainable transport infrastructure charging and internalisation of transport externalities", which will assess infrastructure charges, other internalisation measures and infrastructure-related expenditure. In addition, EU countries should be encouraged to use the possibility offered by Directive 2011/76/EU[68] to **collect external-cost charges from heavy goods vehicles** on top of the infrastructure charges.

With the exception of a few front running countries, the **uptake of alternative fuels for all transport modes** needs to be improved, in a harmonised and synchronised way. The aim is to avoid technological islands, push for economies of scale and ensure cross-border mobility. An ambitious implementation of Directive 2014/94/EU[69] would be a way to deploy an alternative fuels infrastructure with common standards.

**Road charging on European roads** is not systematically or effectively applied. 14 EU countries apply distance-based charges (tolls) to heavy goods vehicles and 8 to private cars on (some) motorways.[70] Other EU countries still use time-based vignettes. 10 EU countries have vignettes for heavy goods vehicles and 7 for cars, for the latter essentially applied on motorways only. In addition, the systems vary in terms of network coverage, charge levels and other conditions. This provides unclear and uncoordinated incentives to users. With very few exceptions tolls are levied electronically, yet the systems are not mutually interoperable. All these

[66] http://ec.europa.eu/transport/themes/its/road/action_plan/its_national_reports_en.htm.

[67] European Alternative Fuels Observatory 2017.
http://www.eafo.eu/eu#eu_incentives_over_table_anchor.

[68] Directive 2011/76/EU of the European Parliament and of the Council of 27 September 2011 amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, OJ L 269, 14.10.2011.

[69] Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the deployment of alternative fuels infrastructure, OJ L 307, 28.10.2014.

[70] Most EU countries have at least one or two pieces of special infrastructure, such as bridges or tunnels, which are tolled.

differences create administrative burden and unnecessary costs for hauliers and tourists.

Systems do not necessarily take account of the environmental impact of vehicles. Tolling schemes which apply to heavy goods vehicles differentiate charges according to the air pollutant emissions of the vehicles, but the same is not true for road charges applying to passenger cars.

EU countries could and should make better use of the possibility to support the shift of freight transport from road to more sustainable transport modes, as offered by the Combined Transport Directive[71]. Considering its fragmented and uneven implementation in EU countries, the Commission proposed an amendment to the Directive on 8 November 2017.

Despite the comparatively good provision of infrastructure in the Benelux countries, Germany, Malta and the United Kingdom, these countries suffer from a **high level of road congestion**. They must deal with high and **increasing costs for the maintenance of** their extensive **transport infrastructure**. This calls for a **more balanced exploitation of all transport modes**. This can be achieved through better and more flexible technologies and service solutions (especially the deployment of intelligent transport systems) and appropriate pricing for the use of infrastructure.

All EU countries need to continue their efforts to **improve road safety**. The poor safety record in Bulgaria, Greece, Croatia, Poland and Romania calls for more effective measures to be urgently implemented.

Transport **fuel taxes** can encourage fuel efficiency and a more sustainable use of cars, including the use of more sustainable fuels. The structure of such duties needs to reflect both the carbon and energy content of fuels. Currently, substantial differences in tax rates on fuels can be observed across EU countries. There is a general **preferential treatment of diesel**. Diesel is taxed less than petrol in almost all EU countries.

**Transport taxation** may have a significant effect on consumers' preferences when purchasing a car. This includes registration tax (levied on the purchase of a car) and vehicle road tax (levied annually on car ownership). Registration of a car is subject to a tax in 20 EU countries, and 22 apply vehicle road taxes.[72]

**Registration taxes** are currently dependent on $CO_2$ emissions in 15 EU countries. 12 countries take emissions into account in the rate of circulation taxes payable on different vehicles[73]. Bulgaria, the Czechia, Estonia, Luxembourg, Lithuania, Poland and Slovakia are among the countries where vehicle taxation based on $CO_2$ emissions would be welcome. However, neither registration taxes nor road taxes affect the marginal cost of using a vehicle. Moreover, the absence of harmonisation of registration taxes at EU level can create a significant administrative burden and sometimes double taxation when vehicles are transferred to another country.[74]

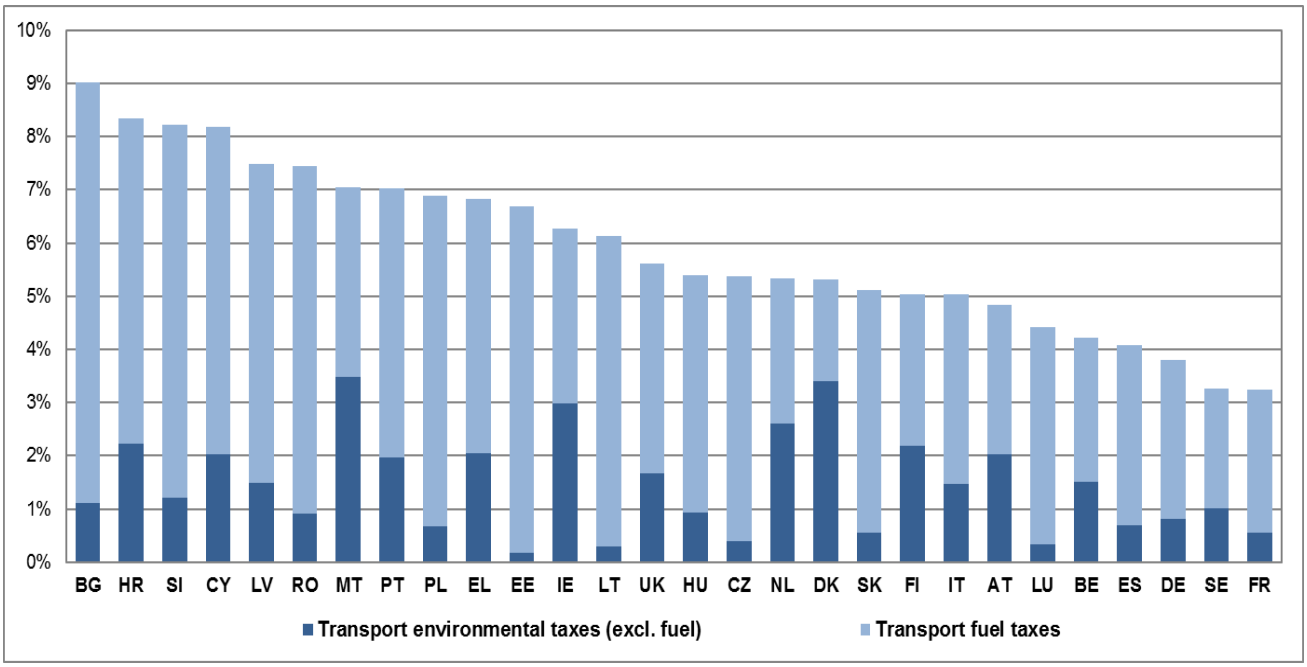
[71] Council Directive 92/106/EEC of 7 December 1992 on the establishment of common rules for certain types of combined transport of goods between Member States, OJ L 368, 17.12.1992.

[72] ACEA Tax Guide 2016.

[73] European Commission, Tax Reforms in EU Member States 2015, Institutional Paper 008 | September 2015.

[74] Ibid.

Figure 10: Transport environmental taxes as % of total taxation (2016)




Source: European Commission, Taxation trends in the European Union, 2018.

The **share of environmental taxes in total transport taxation** can indicate only to some extent how the taxation system addresses transport externalities. There are other factors affecting the decision on how to tax transport/vehicles and overall the design of the system has a greater influence on the behaviour of motorists as opposed to the absolute tax levels.

**Favourable tax treatment of company cars** is a practice that needs to be considered when looking at the internalisation of environmental costs.

Several EU countries subsidise the private use of company cars.

Belgium, Ireland, Estonia, and Latvia allow a partial deduction of the VAT charged on the purchase of company cars intended for private use by employees. Advantageous company car schemes tend to encourage car ownership and often affect the choice of model and driving habits. Recent Commission proposals are seeking to address these problems.[75]

[75] COM(2017) 275, COM(2017) 276.

# 5. Overview of the Transport Sectors in the EU countries

## Belgium

### Main current issues in Belgium

Issue 1 – Efficient infrastructure management to reduce congestion

Transport infrastructures are well developed, but growing traffic commuter and freight volumes are putting them under increasing pressure, leading to congestion and declining air quality in inner cities. Investments to address bottlenecks would benefit from more systematic cost-benefit analysis, which is currently under used. Investment choices would also benefit from better coordination between the federal government, in charge of railways, and regions, in charge of roads, ports and inland waterways.

Increasing the size of infrastructure, however, could be only part of the answer. Traffic volumes are boosted by large commuting subsidies and a cost-efficient policy would be to develop congestion pricing in both road and railway transport to reduce congestion and address negative externalities in terms of environmental impact and cost to the economy.

Another approach to alleviate pressure on the transport system would be to target investments in bottlenecks and alternative transport modes. While the average use of the road network is relatively low, transport tends to be concentrated around Brussels and Antwerp.

Investments in inland waterway infrastructures have aimed at shifting freight transport from roads and rail. Nevertheless, road freight transport is contributing to congestion and an ambitious road-pricing scheme for trucks seems necessary.[76]

Issue 2 – Competition in transport services

In the urban passenger transport sector, regulatory requirements are high in all three Belgian regions and quantitative restrictions apply to some services. Passenger railway services and long-distance coach services are not open to competition.

Issue 3 – Public transport in Wallonia

The supply of public transport in Wallonia has room for improvement. Costs of public transport in Wallonia are structurally important because of a lower-density of population. Lack of multi-annual expenditure planning and transport disruptions complicate the tasks of TEC, the main regional and urban transport provider. Difficult access to employment areas is a major difficulty for job-seekers and increases the already important tax wedge of Belgium.[77]

[76] OECD Economic survey Belgium (2013): Better use of infrastructures to reduce environmental and congestions costs.

[77] Annual activity report of TEC 2017: https://rapportannuel.groupetec.be/srwt/#mot-de-la-direction.

## Key facts and figures on transport in Belgium

### Modal split

The modal split for passenger transport in Belgium corresponds roughly to the EU average. It is to be noted though, that the use of trams and metro is below the European average.

Freight transport also seems to rely predominantly on road, rather than railways. However, in Belgium inland waterways account for an important share of the modal split for freight transport.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Belgium | 81.0% | 10.4% | 7.7% | 1.0% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Belgium | 71.9% | 10.6% | 15.1% | 2.4% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

Belgium's international ranking in the World Bank Logistics performance indicator has improved again in 2018 after it had slightly dropped between 2014 and 2016. The overall performance of the logistics sector is at a high level in international comparison.

The absolute values of the indicator in 2018 are similar to the year 2014. However, there appears to be a slow but consistent deterioration in the infrastructure score.

World Bank Logistics performance indicator

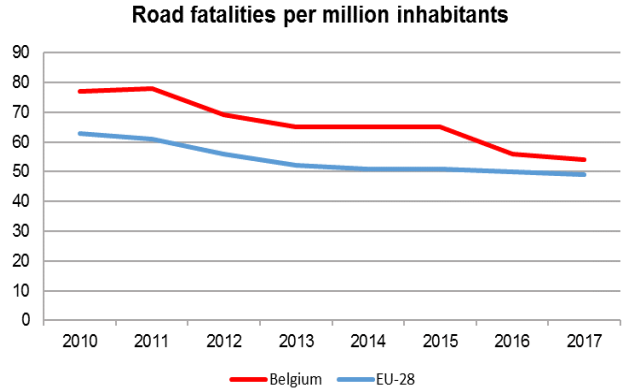
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 3 | 6 | 3 |
| Score | 4.04 | 4.11 | 4.04 |
| Customs | 11 | 13 | 14 |
| Score | 3.80 | 3.83 | 3.66 |
| Infrastructure | 8 | 14 | 14 |
| Score | 4.1 | 4.05 | 3.98 |
| International shipments | 2 | 3 | 1 |
| Score | 3.8 | 4.05 | 3.99 |
| Logistics competence | 4 | 6 | 2 |
| Score | 4.11 | 4.07 | 4.13 |
| Tracking & tracing | 4 | 4 | 9 |
| Score | 4.11 | 4.22 | 4.05 |
| Timeliness | 2 | 4 | 1 |
| Score | 4.39 | 4.43 | 4.41 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Belgium has a higher road fatality rate than the EU average and its own neighbouring countries.

The number of fatal accidents on motorways is unusually high compared to the EU average. Furthermore, the share of cyclist fatalities is slowly increasing. Belgium also has a rather low reported seat belt use: in the front seat 80% and for the rear seat only 68%.

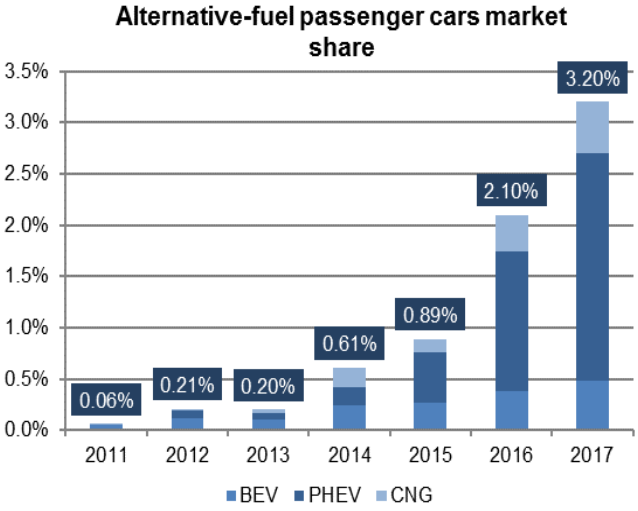



Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The use of alternative fuels in new passenger cars sold in Belgium has been increasing very dynamically over the past four years.

The different Belgian regions each apply their own set of support measures, potentially leading to market fragmentation, but all put emphasis on encouraging the uptake of electric vehicles. The Federal Government grants a tax credit of 30% on the purchase of an electric vehicle.

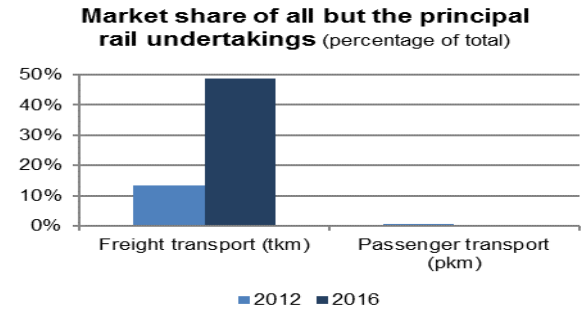



Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).

## Market opening in the railway sector

The market opening of the railway sector is making progress for the freight sector, but not for passenger transport.

Since a reform in 2014, the infrastructure manager *Infrabel* is separated from the 99% state-owned *SNCB/NMBS*.



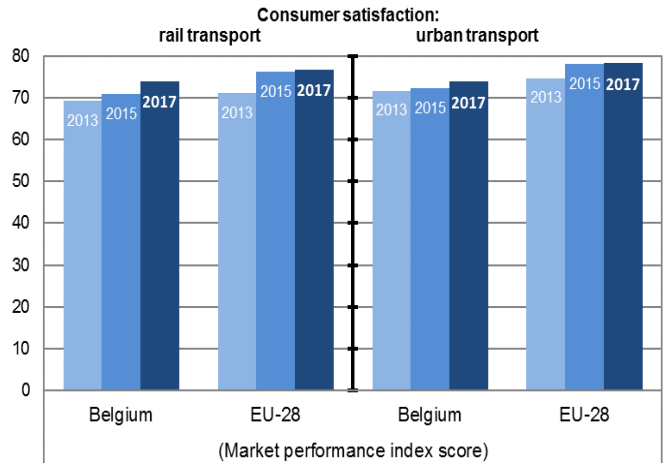

Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

Belgium's consumers are less satisfied with the quality of both passenger rail transport and urban transport than the EU average.

According to a Eurobarometer survey in 2018 (Flash Eurobarometer 463), the satisfaction with punctuality and reliability of rail services in Belgium is below EU average.

Whereas global satisfaction in the EU has increased since 2013, improvements are minimal for Belgium over the same period of time.

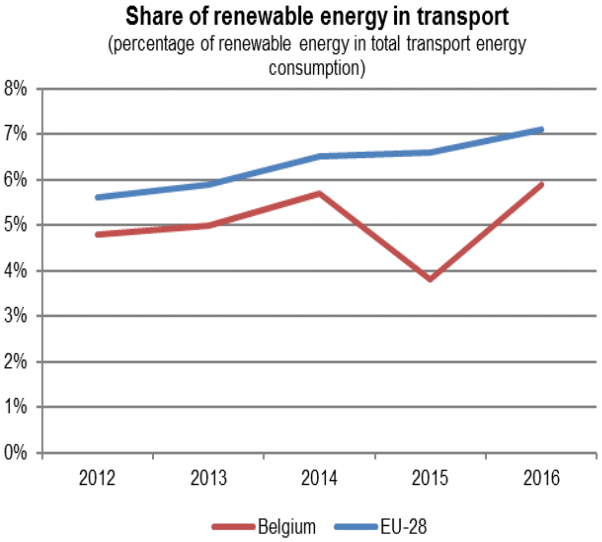



Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

Belgium's share of renewable energy in transport was following the EU average trend until 2015, when it suddenly dropped dramatically. To a large extent, this can be explained by the drop of biodiesel supply by 42% compared to 2014 because of the invalidation of the law specifying the rules for the blending of biofuel into diesel in June 2015.

With the increasing market share of alternatively-fuelled new cars, the share of renewable energy seems to be slowly recovering in 2016.




Source: Eurostat.

## Completion of TEN-T Core Network in Belgium

Belgium is globally very advanced in completing its share in the TEN-T Core Network. Yet gaps persist, mainly in the conventional rail part.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 99% | 71% | 100% | 87% |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

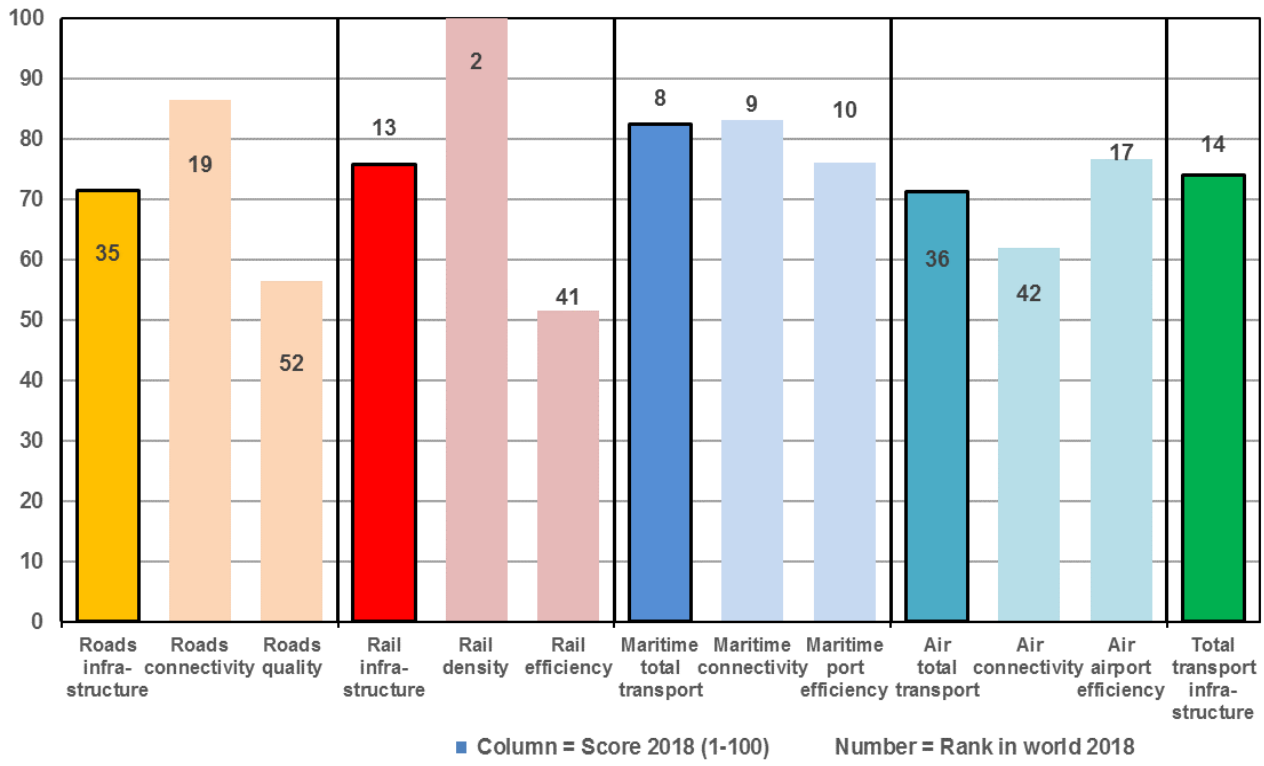
## Quality of the transport infrastructure in Belgium

Belgium has a dense road and rail network, supported by port infrastructure, which is well integrated into major European transport infrastructures. Overall, the quality of the transport infrastructure is very good, according to the World Economic Forum. In particular, port infrastructure has been highly regarded over the years and scores high in the World Economic Forum's ranking. However, Belgium scores rather poorly in terms of road quality and rail efficiency.

One of the reasons for the lower quality of road infrastructure might be the fact that public investment into road maintenance has been structurally low, as a result of policy choices within a context of prolonged fiscal consolidation. According to the OECD, transport infrastructure investments in Belgium have been hovering around 0.4% of GDP since 2005. The growing problem of road congestion around the main economic hubs might also negatively affect the perception of the quality of road infrastructure. Belgium is one of Europe's most congested countries.

Rail efficiency stands out with a low scoring. A Eurobarometer survey in 2018 (Flash Eurobarometer 463) revealed that the satisfaction of passengers with punctuality and reliability of rail services in Belgium is below EU average.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Bulgaria

## Main current issues in Bulgaria

### Issue 1 - High road fatality rates

The poor road safety record in Bulgaria with 96 deaths per million inhabitants in 2017 (EU average was 49) calls for more effective measures to be urgently implemented. There are substantial societal and economic transport costs related to the unsatisfactory safety in road transport. Bulgaria's poor performance can be explained among others by a very old vehicle fleet and an under-developed road network. Improvements are expected from the on-going construction of a modern motorway network connecting all the larger cities.

### Issue 2 - Modernisation and investment in transport infrastructure have been slow

In the presence of financial and structural challenges, modernisation of the transport infrastructure has been slow. Bulgaria is among the Member States with the lowest perceived quality of transport infrastructure, perceived as one of the most problematic factors for the business.

The implementation of the TEN-T policy could pave the way towards the future of Bulgaria's transport system, in particular through low-emission facilities, new generation services concepts and innovation. This includes the construction of road and rail infrastructure, building the links to the Western Balkans and exploiting the potential of the Black Sea and the Danube. Doing so would allow Bulgaria to benefit from its central location as a transit country on the future Alpine-West Balkans Rail Freight Corridor. The priority remains to develop the Corridors of the TEN-T Network ("Orient/East-Med" and "Rhine-Danube"), as well as the connections with Western Balkan countries.

The road infrastructure's development should tackle existing imbalances between regions, thus improving connectivity between north and south Bulgaria. Higher revenues from the electronic vignette system are expected to allow safer road infrastructure, completion of missing networks' sections, faster deployment of intelligent transport systems and interfaces with other modes of transport.

### Issue 3 – Rail passenger market suffers from a lack of effective competition

The rail passenger market suffers from a lack of effective competition. While it has financial issues, under the public service contract until 2024 the railway company *BDZ* holds 92% of the market share on total volume of carriages, allowing an easy achievement of the volume of transport in train-kilometer - a main indicator for fulfilment of the public passenger service obligation under the contract. At the same time, the passengers' dissatisfaction translates into a decrease of the number of people using trains (10 000 000 passengers less in 2017 compared to 2009). The Railway Administration Executive Agency within the structure of the Transport Ministry faces serious problems in fulfilling to a full extent its functions with 54 full time job positions. The extremely low remuneration is a major obstacle for attracting highly qualified specialists. This prevents the development of a normal governance structure and compliance with impartiality requirements and leads to lack of control in performing certification. An increased use of competitive tendering for public service contracts, apportioning the service and a competitive award procedure for access to rail rolling stock would encourage the entry of new private operators. With respect to rail freight transport, the market is more open to competition. Nonetheless, there is a need to address the significant maintenance backlog of the rail network.

## Key facts and figures on transport in Bulgaria

### Modal split

Bulgaria records a high usage of passenger cars and in 2016 car trips represented almost 80% of the passenger-kilometres travelled, which is just below the EU average. Bulgaria has a much higher than the EU-28 average usage of buses and coaches – 17.2% vs 9.3%. On the other hand, figures for Bulgaria show a much lower use of rail (2% vs 7.6%).

For land freight transport, road transport holds the largest share for freight transport activity with about 54 % of all tonne-kilometres driven. In addition, Bulgaria has almost the same share of rail transport as the EU average. Over time, the road freight sector's modal share in Bulgaria has grown in relation to rail freight transport. Bulgaria is one of the EU countries with the highest shares of inland waterways in freight transport.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Bulgaria | 79.6% | 17.2% | 2.0% | 1.1% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Bulgaria | 53.8% | 16.5% | 26.3% | 3.4% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the World Bank, the logistics sector in Bulgaria has not been performing well since 2010. In 2018, the sector ranked 52 in the Logistics performance indicator (LPI) which is a substantial recovery after a slump in 2016, but still lower than in 2014.

The low rank in the indicator is mostly caused by the poor logistics infrastructure quality, low logistics competence and problems in the area of customs.

World Bank Logistics performance indicator

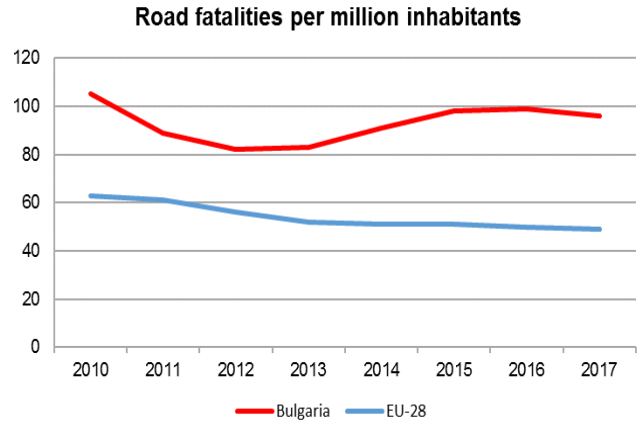
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| **LPI Rank** | **47** | **72** | **52** |
| Score | 3.16 | 2.81 | 3.03 |
| **Customs** | **64** | **97** | **42** |
| Score | 2.75 | 2.40 | 2.94 |
| **Infrastructure** | **53** | **101** | **64** |
| Score | 2.94 | 2.35 | 2.76 |
| **International shipments** | **37** | **67** | **41** |
| Score | 3.31 | 2.93 | 3.23 |
| **Logistics competence** | **55** | **52** | **55** |
| Score | 3 | 3.06 | 2.88 |
| **Tracking & tracing** | **76** | **80** | **59** |
| Score | 2.88 | 2.72 | 3.02 |
| **Timeliness** | **24** | **72** | **65** |
| Score | 4.04 | 3.31 | 3.31 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Bulgaria is the Member State who registered the second highest road fatality rates in 2017, with 96 deaths per million inhabitants.

Bulgaria's poor performance can be explained by a very old vehicle fleet and an underdeveloped road network. Improvements are expected from the ongoing construction of a modern motorway network connecting all the larger cities. Over the last decade, the best improvement rates have concerned pedestrians and young drivers, where fatality rates have been significantly cut since 2001.

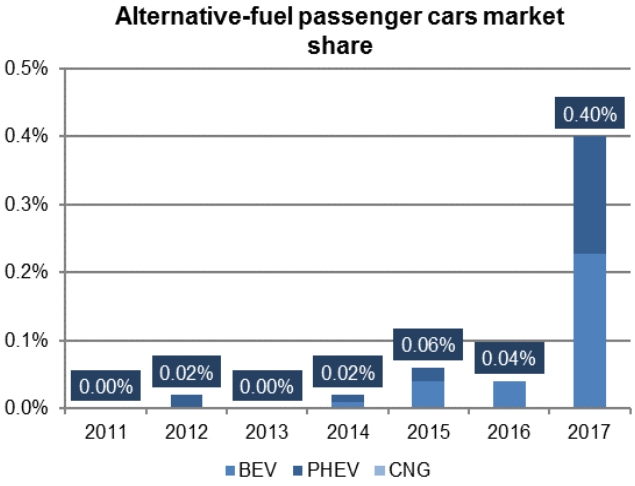



Source: DG MOVE - CARE data.

## Alternative fuels in road transport

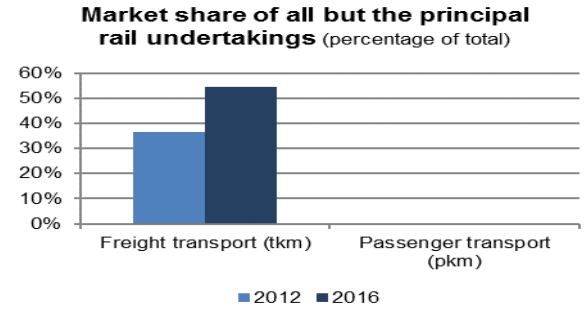
The number of electric charging points in Bulgaria has increased from 22 units in 2016 to 94 units in 2017. This has been accompanied by a moderate increase in the market share of electric vehicles. The resulting penetration rate of alternative-fuelled passenger cars is still among the lowest in the EU. According to the European Alternative Fuels Observatory, in 2018 there were only 2 public charging points per BEV/PHEV vehicle (EU-average: 8).

Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).




## Market opening in the railway sector

The rail passenger market has been suffering from a lack of effective competition – due to a lack of competitive tendering for public service contracts and the absence of safeguards against unfair practices. New commercial operators face discrimination in obtaining fair access to rail infrastructure and essential service facilities. Bulgaria does not seem to have implemented regulatory measures which are key for ensuring a competitive level playing field. Such measures would include: a truly independent and adequately staffed regulatory body and an effective separation of accounts between the management of rail infrastructure and the provision of transport services.



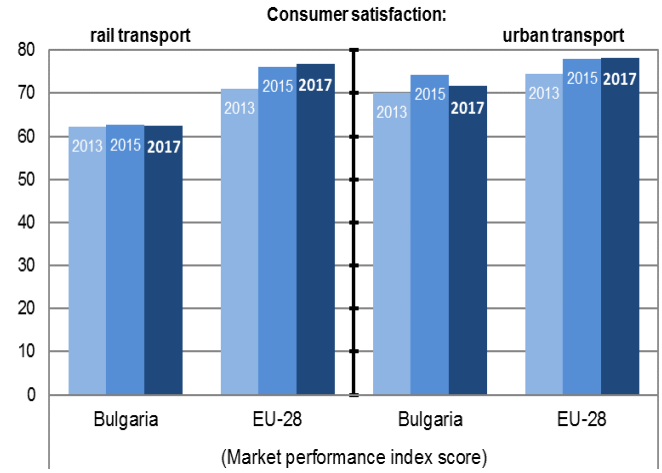

Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

With respect to rail freight transport, the market is more open to competition. Nonetheless, there is a need to address the significant maintenance backlog of the rail network and to provide the regulatory body *RAEA* with more resources. Doing so would allow Bulgaria to benefit from its central location as a transit country on the future Alpine-West Balkans rail freight corridor.

## Consumer satisfaction with public transport

Consumer satisfaction with rail passenger transport is poor in Bulgaria compared to the EU average. According to a dedicated Eurobarometer survey in 2018 (Flash Eurobarometer 463), consumers are particularly unhappy about complaint handling, punctuality, frequency and cleanliness of the trains. Accessibility for passengers with reduced mobility seems to be significantly below EU average.

Satisfaction with the quality of urban public transport is closer to the EU average than for rail, but the situation seems to have worsened from a consumer perspective in 2017, as compared to 2015.

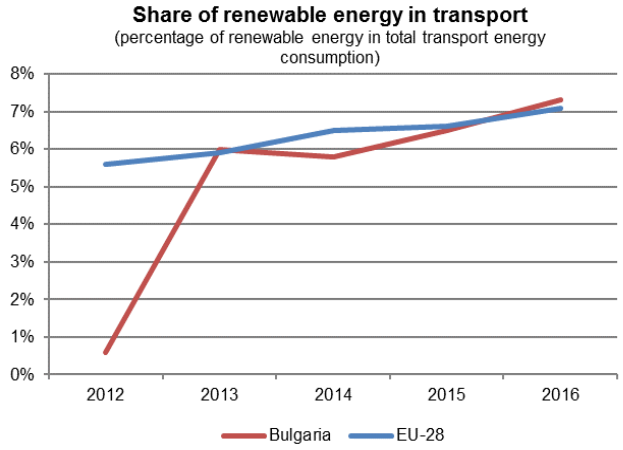



Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Renewable energy in transport

The share of renewable energy in the energy consumption of Bulgaria's transport section has been very low in the past, but has increased considerably over the last years. In 2016, it surpassed the EU-average level.

In Bulgaria, the main support scheme for renewable energy sources used in transport is a quota system. This scheme obliges companies importing or producing petrol or diesel to ensure that biofuels make up a defined percentage of their annual fuel sales. Furthermore, biofuels are supported through a fiscal regulation mechanism.




Source: Eurostat.

## Completion of TEN-T Core Network in Bulgaria

The Bulgarian share of the TEN-T Core Network is complete for inland waterways. On road and rail, however, the country is still lagging behind.

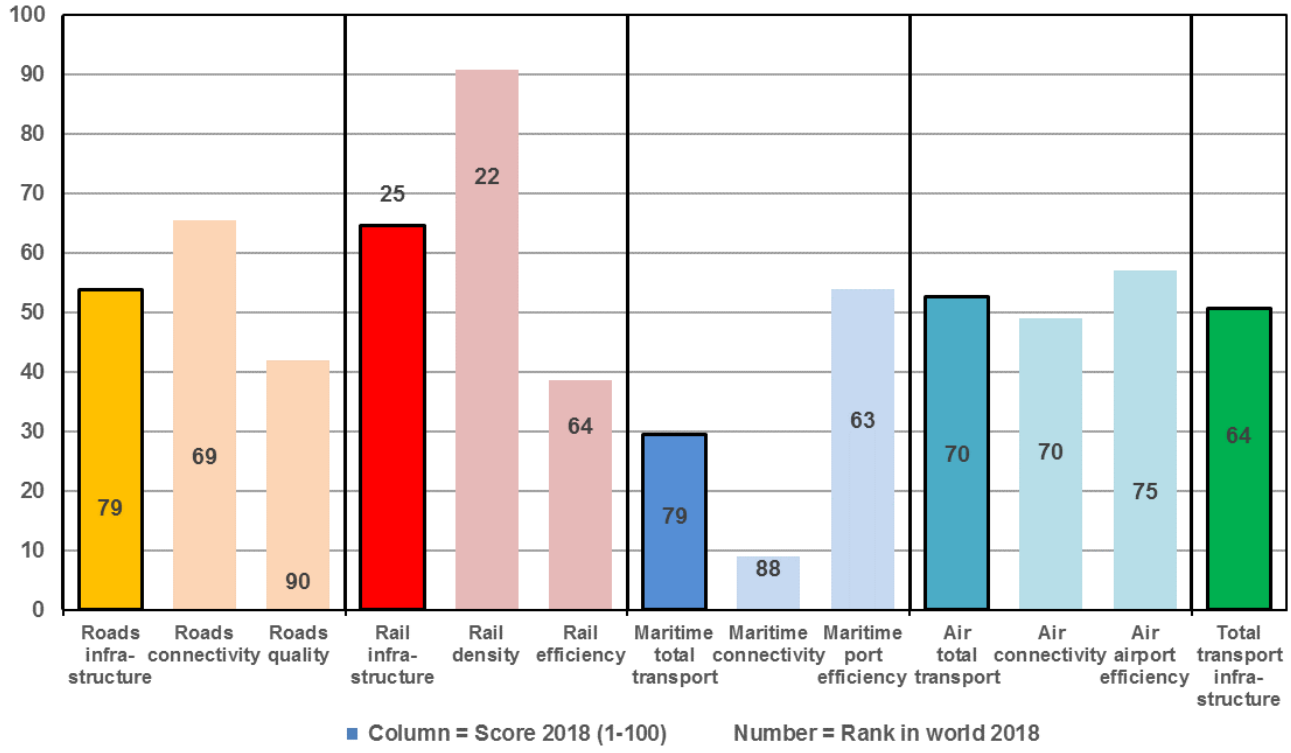
| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 50% | 11% | not applicable | 100% |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Bulgaria

Bulgaria is among the Member States with the lowest perceived quality of transport infrastructure. While the quality of road infrastructure has been increasing slightly over the last years, following significant investments supported by the European Structural and Investment Funds, the quality of roads is still poor and the satisfaction with the rail infrastructure is low. As a result of the insufficient quality, declining traffic intensity for both freight and passenger rail transport is observed.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Czechia

## Main current issues in Czechia

### Issue 1- Competition in the passenger rail market

More competition in the open-access passenger rail market would be beneficial for consumers in Czechia, in particular if Czech authorities removed outstanding obstacles for potential market entrants, for example through increasing their access to rolling stock. Another possible measure would be to gradually introduce the public tendering of public service contracts in passenger rail. A strong rail regulator with sufficient resources available to carry out its task can ensure a level playing field.

### Issue 2- Investment in transport infrastructure

The development of new infrastructure projects and maintenance of the existing infrastructure remain low. An investment backlog has accumulated and the prices of new infrastructure projects are high. New forms of public-private partnership financing of transport infrastructure could be part of the solution. The legal framework bears potential for simplification, in particular as regards building permissions.

While the development and maintenance of the whole infrastructure network is important, particular emphasis from an EU perspective is on completing the Core Network by 2030 - in particular the Core Network Corridors - and on upgrading the entire TEN-T Network according to the infrastructure requirements laid down in the TEN-T Guidelines (Art. 39, Regulation (EU) No 1315/2013). Further efforts will be required to improve efficiency and effectiveness of investment in transport infrastructure related to the three Core Network Corridors crossing through Czechia.

The existing investment gaps are mostly linked to the infrastructure quality and standards, in particular the infrastructure requirements defined in TEN-T Regulation. Czechia is also missing important cross-border links for rail, road and inland waterways of high European benefit such as Opole (PL) – Ostrava (CZ), Katowice (PL) – Ostrava (CZ), Brno (CZ) – Wien-Schwechat (AT).

As regards high-speed railway connection between Dresden and Prague, the highest priority should be given to the cross-border section until Ústí nad Labem. Along the Czech Elbe part between the German and Czech border the ongoing works should be continued to increase capacity and performance. The long-distance rail connection to Prague Airport is still an outstanding issue.

Czechia should strictly follow its national ERTMS deployment plan, and remove the national system five years after ERTMS deployment. This should go along with equipment of locomotives running on the lines, to be equipped by 2023 (mainly Core Network Corridors).

### Issue 3 – Renewable energy in transport

Among EU countries, Czechia has one of the lowest shares of electric vehicles in newly registered passenger cars and a below EU-average number of public charging points per plug-in electric vehicle.[78] The share of renewable energy in transport is declining and currently below the EU average.

[78] European Alternative Fuels Observatory, 2018.

## Key facts and figures on transport in Czechia

### Modal split

Czechia records a relatively low use of passenger cars. In 2016, car trips represented two thirds of the passenger-kilometres travelled which is 15 % below the EU average. On the other hand, Czechia records a much higher use of buses and coaches than the EU average. Regarding rail passenger transport, the share of this mode of transport is slightly higher than the EU average. Use of urban transport is very high at 9.5% in comparison with 1.8% on average in the EU.

For land freight transport, the road transport holds the largest share of freight transport activity - almost 72% of all tonne-kilometres driven. In addition, Czechia has a higher share of rail transport than the EU average. Usage of inland waterways is minimal.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Czechia | 66.5% | 15.4% | 8.0% | 10.1% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Czechia | 71.6% | 25.7% | 0.1% | 2.6% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the World Bank, the logistics sector in Czechia ranks 22nd globally in 2018. The ranking indicates deficiencies in customs handling and infrastructure. On the other hand, Czechia scores rather well in international shipments and timeliness, globally ranking 10th and 16th respectively.

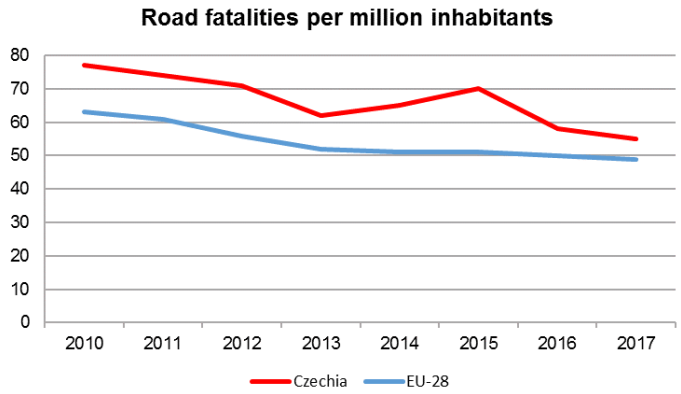
World Bank Logistics performance indicator

| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 32 | 26 | 22 |
| Score | 3.49 | 3.67 | 3.68 |
| Customs | 33 | 19 | 30 |
| Score | 3.24 | 3.58 | 3.29 |
| Infrastructure | 36 | 35 | 26 |
| Score | 3.29 | 3.36 | 3.46 |
| International shipments | 13 | 18 | 10 |
| Score | 3.59 | 3.65 | 3.75 |
| Logistics competence | 29 | 26 | 20 |
| Score | 3.51 | 3.65 | 3.72 |
| Tracking & tracing | 25 | 21 | 24 |
| Score | 3.56 | 3.84 | 3.7 |
| Timeliness | 39 | 28 | 16 |
| Score | 3.73 | 3.94 | 4.13 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

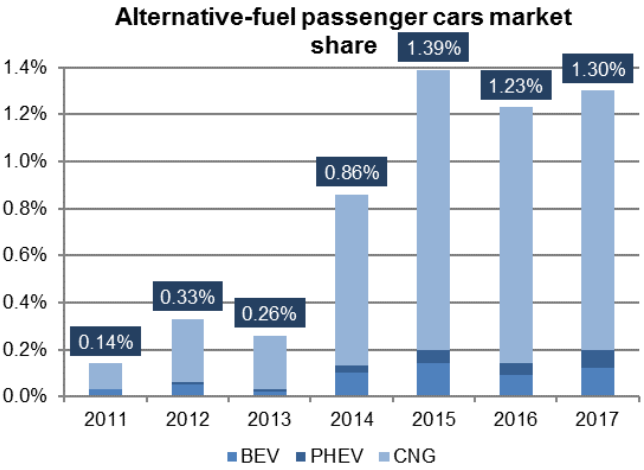
The number of road fatalities has decreased since 2010. However, the number of road fatalities is still above the EU average: in 2017, there were about 55 road fatalities per million inhabitants in Czechia. Data for 2017 shows an impressive decrease of 28% on fatalities since 2010 compared to 20% for the EU average.




Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The number of new passenger cars using alternative fuels has multiplied by 10 over the period between 2011 and 2017. The market share of compressed natural gas in transport has increased significantly in the years 2014-2017, as did the number of electric charging points. According to the European Alternative Fuels Observatory, they amounted to 7 per PEV (8 on average in the EU).



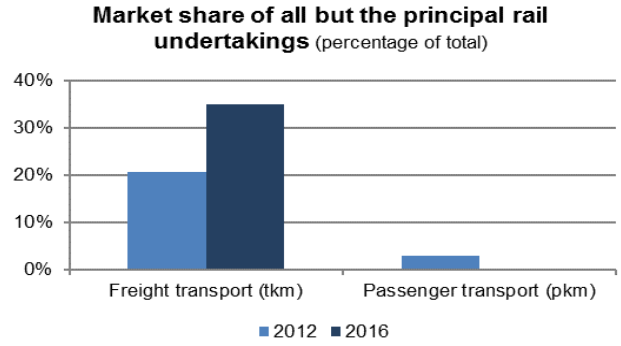

Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).

## Market opening in the railway sector

Whereas market opening in rail freight transport has made progress, this is not the case for passenger transport.

The rail freight market has opened up for competition and the market share for all but the incumbent rail undertakings has risen by 70% between 2012 and 2016.

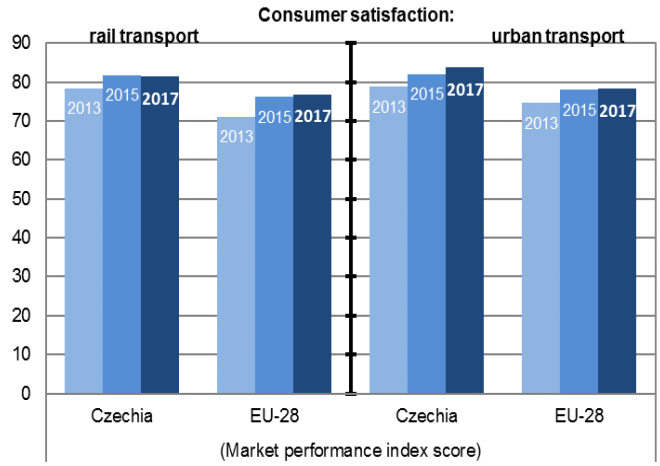
In rail passenger transport, the Czech authorities are gradually introducing competitive tendering procedures of rail public service obligations. Discussions are on-going in Czechia on the future of public service contracting in rail after the current contract attributed directly to the Czech Railways expires in 2019.




Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

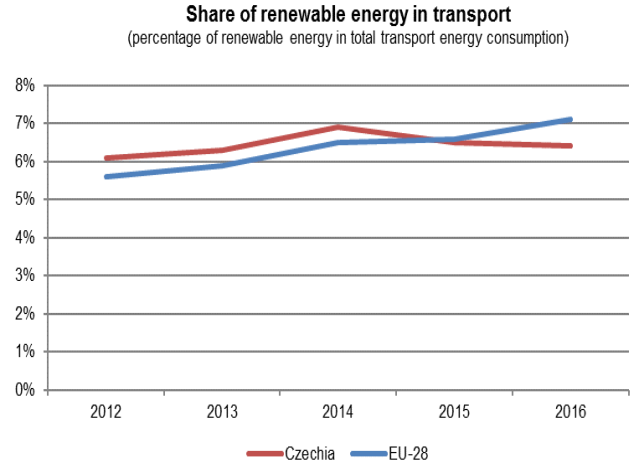
Consumer satisfaction with public transport is above the EU average in Czechia.




Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Renewable energy in transport

The share of renewable energy in transport had been slightly above EU average, but declined again after 2014, despite the increasing share of alternative fuels in transport.




Source: Eurostat.

## Completion of TEN-T Core Network in Czechia

The Czech contribution to the TEN-T Core Network is still far from complete. Mainly the rail network needs further investment.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 55% | 63% | 0% | 84% |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Czechia

The significant underinvestment in transport infrastructure during the period 2010-2013 is reflected in a rather low user satisfaction with the road network and a poor score in road quality still in 2018.

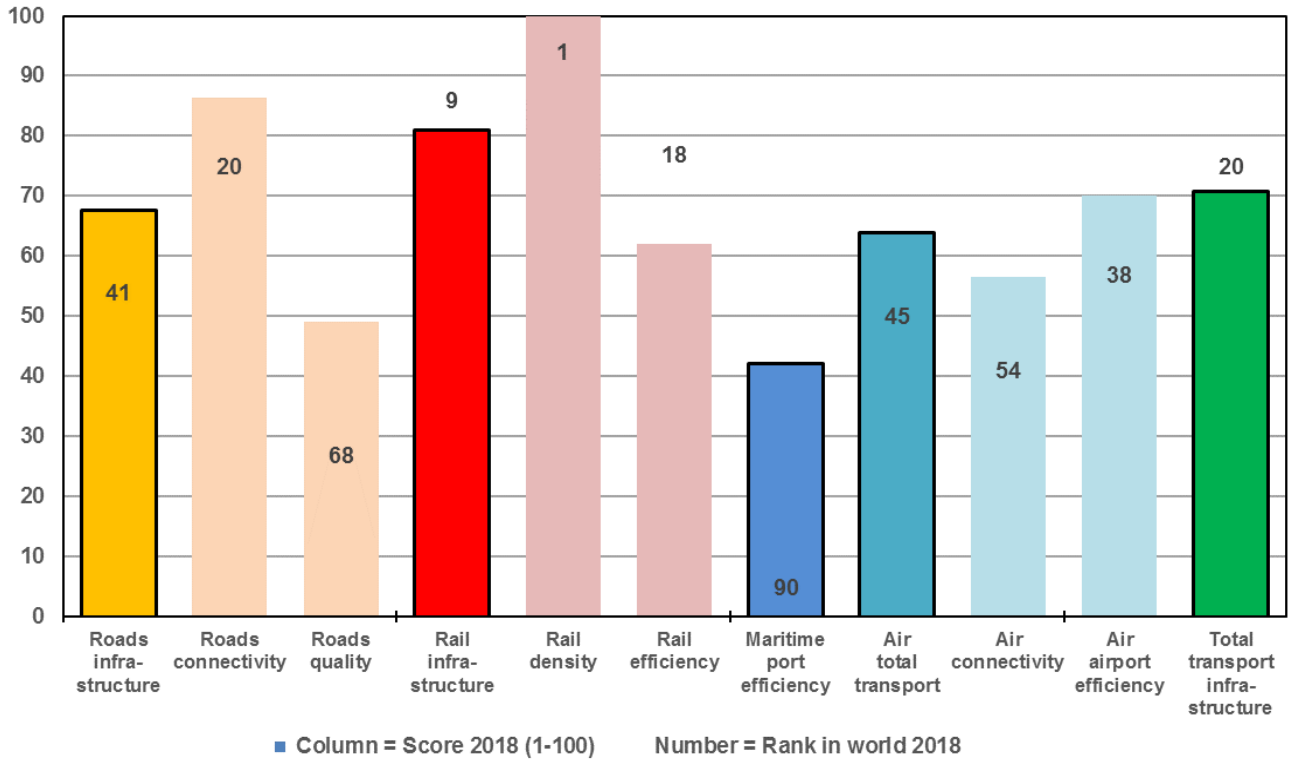
Existing investment gaps in the road network are linked to infrastructure coverage, quality and standards, low carbon aspects (e.g. share of renewable energy in transport, electric vehicles take-up and electric vehicle charging points) and road safety.

Essential parts of the TEN-T core motorway network (e.g. important parts of the Prague ring-road) have not been built or modernised due to a lack of proper strategic planning. Uneven development and connectivity impact primarily the north-eastern parts of the country and the northern parts of Moravia.

Czechia is a significant transit country (20% of the intensity on the Czech highway network is transit), which puts great demands on transport infrastructure and multimodality.

The density of the rail network is very high (120 km per 1 000 km$^2$ compared with 49 km in the EU in 2016) but the network requires substantial modernisation, with just 34% of lines electrified in 2016, compared with 54% in the EU overall. There is also a lack of high-speed railway connections, and cross-border connections are poor.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Denmark

## Main current issues in Denmark

### Issue 1 – Share of alternative fuels in transport

According to the declared objective of the Danish Government, Denmark is committed to achieve the goal of becoming a low-emission society, independent of fossil fuels by 2050. The Danish Government seeks to promote a market-driven (i.e. determined by market players) development of infrastructure deployment and to limit public financial aid, so that greater pressure on public finances can be avoided.

For electricity in transport, the Danish policy strategy is fundamentally based on current rather than planned measures. Denmark estimates that the electric vehicle share (of all vehicles on the road) will remain below 1 % until 2020. According to the European Alternative Fuels Observatory, in 2018 there were 7 public plug-in electric vehicle charging points per vehicle (8 on average in the EU). The prospects of shore-side electricity supply in Danish maritime ports are not good. The only policy measure appears to be a tax relief for electricity. However, this incentive was not sufficient to make the investment in shore-side electricity supply attractive in the context of the *Nordhavn* expansion of the Port of Copenhagen. At the opposite extreme lies the status of electricity supply for stationary airplanes. Denmark considers itself a leader in this matter.

In railways, the share of electrified lines was 24.5% in 2016 compared an EU average 53.7%. As a consequence, the large majority of Danish locomotives are diesel driven, which is adversely affecting the environment. In June 2018, the Danish railway operator announced plans to electrify the national railway network, with broad support from parliament. According to the plan, the new electrified trains on the national network will be up and running in 2022.

### Issue 2 – Competition in the transport service sector

Competition for taxis and public transport services is restricted. The rail passenger market is dominated by a state-owned rail undertaking and largely closed to competition. Yet, licensed operators are providing services on a small share of the network. Commercial hire transport is carried out almost exclusively by taxis. Basically, there is no other category of commercial passenger transport except for limousine service, for which few licences have been issued. The development of professional hire transport is impeded by the lack of clear regulation and by complex quality requirements.

### Issue 3 – Road congestion

Denmark has high-quality roads, but congestion is increasingly a problem. In terms of road quality, Denmark ranks high in the Global Competitiveness Report (World Economic Forum, 2018) with its well-developed road network. Since 2008, the investment rate in road infrastructure has gradually increased to a level comparable with the EU average. Road congestion is, however, increasing, particularly around the large cities. Projections from the Ministry of Transport, Building and Housing (2018) suggest that in ten years' time car commuters will spend 150 % more time each year in congestion than they did in 2018.

## Key facts and figures on transport in Denmark

### Modal split

The modal split for passenger transport is close to the EU average, although the share of tram and metro transport is below the EU average.

Freight transport in Denmark relies to a larger extent on road transport than the EU average. Correspondingly, the share of railways is lower. Inland waterways do not play any role for freight transport in Denmark.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Denmark | 81.1% | 9.7% | 8.7% | 0.4% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Denmark | 81.7% | 10.2% | 0.0% | 8.0% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

The World Bank Logistics performance indicator shows that the Danish logistics sector is highly competitive in international comparison. Compared to the two previous editions of the indicator, the position of the Danish logistics sector has improved a lot. Yet, its ranking in international shipments shows a declining trend since 2014, although the indicator score for international shipments has remained relatively stable over the same period.

World Bank Logistics performance indicator

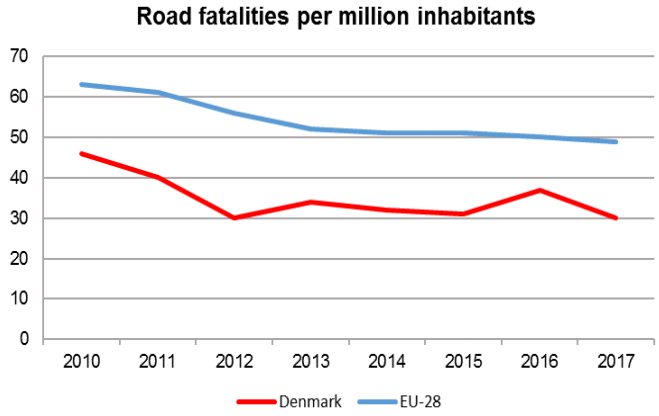
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 17 | 17 | 8 |
| Score | 3.78 | 3.82 | 3.99 |
| Customs | 13 | 14 | 4 |
| Score | 3.79 | 3.82 | 3.92 |
| Infrastructure | 17 | 24 | 17 |
| Score | 3.82 | 3.75 | 3.96 |
| International shipments | 9 | 15 | 19 |
| Score | 3.65 | 3.66 | 3.53 |
| Logistics competence | 18 | 9 | 9 |
| Score | 3.74 | 4.01 | 4.01 |
| Tracking & tracing | 36 | 25 | 3 |
| Score | 3.36 | 3.74 | 4.18 |
| Timeliness | 3 | 30 | 2 |
| Score | 4.39 | 3.92 | 4.41 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Denmark has a very good road safety record, with fatalities way below the EU average.

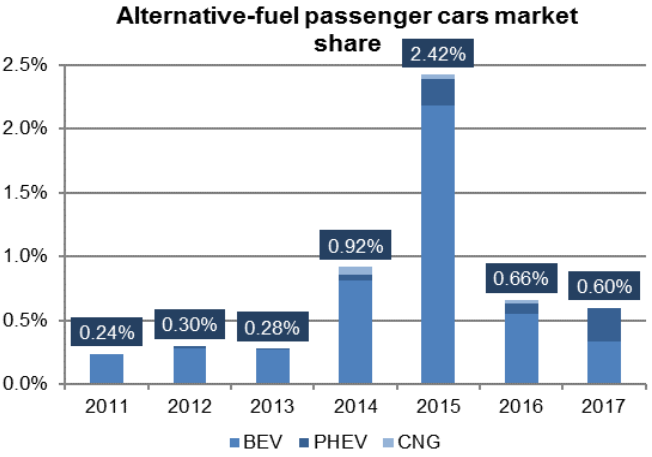
The rate of cyclist fatalities is significantly higher than the EU average (15% against 8%). This is likely due to Denmark having a strong bicycle culture and many cyclists on the roads.




Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The share of alternative fuels in the market for new passenger cars is low. According to the European Alternative Fuels Observatory, in 2018 there were 7 public plug-in electric vehicle charging points per vehicle (8 on average in the EU). The Government in Denmark is committed to achieve the goal of becoming a low-emission society, independent of fossil fuels by 2050. Yet, it seeks to promote a market-driven development of infrastructure deployment and it limits public financial aid, so that greater pressure on public finances could be avoided.

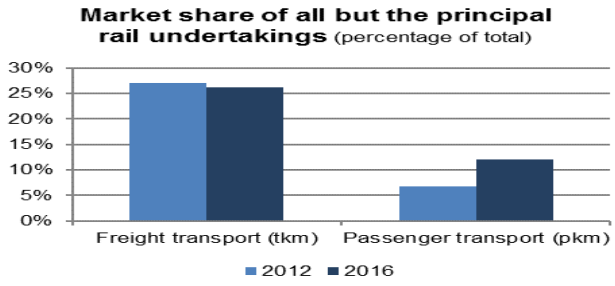



Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).

## Market opening in the railway sector

State-owned *Banedanmark* is in charge of the vast majority of the network, except for some 500 km of lines controlled by private companies. For freight transport, market access seems to be easier than for rail passenger transport which is entirely under public service contracts.

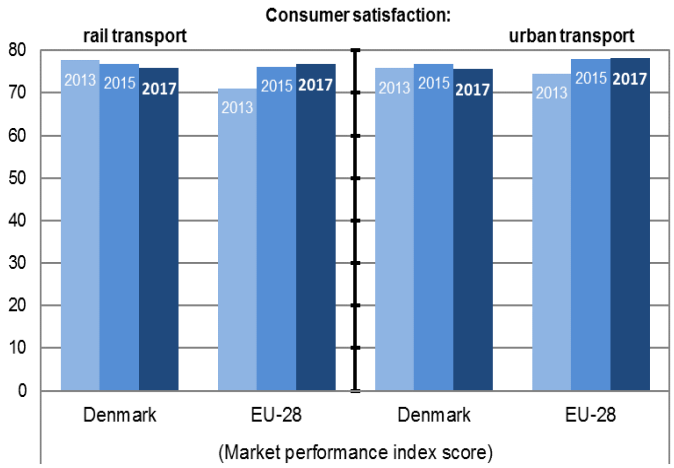
The Danish infrastructure manager is independent in legal, organisational and decision-making terms from the railway undertakings. It is organised as a Government agency under the tight control of the Ministry of Transport which also exercises control over the incumbent railway undertaking. In particular on questions concerning track access charges, Denmark tries to restrict the management autonomy of the infrastructure manager to a minimum.




Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

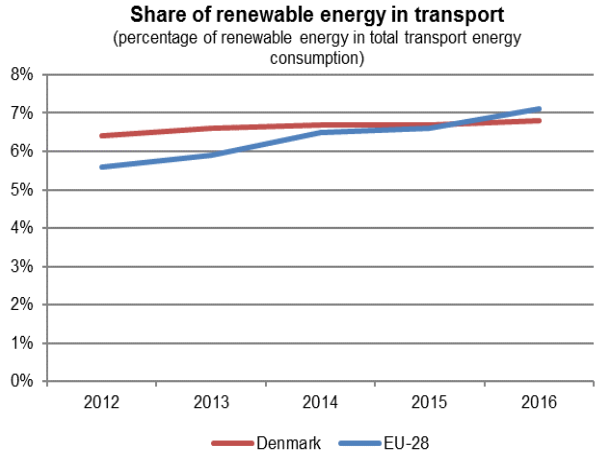
Consumer satisfaction with public transport in Denmark seems to be converging with the EU average. Satisfaction with rail transport was still above EU average in 2013 but displays a declining trend since then.




Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

The share of renewables in transport has remained at a relatively high but unchanged level (and below the 10 % target) for several years. Whilst Denmark used to perform above EU average, it is now slightly below the average.




Source: Eurostat.

## Completion of TEN-T Core Network in Denmark

The completion of the TEN-T Core Network in Denmark is relatively advanced for the road part, but on the rail part there is still room for further development.

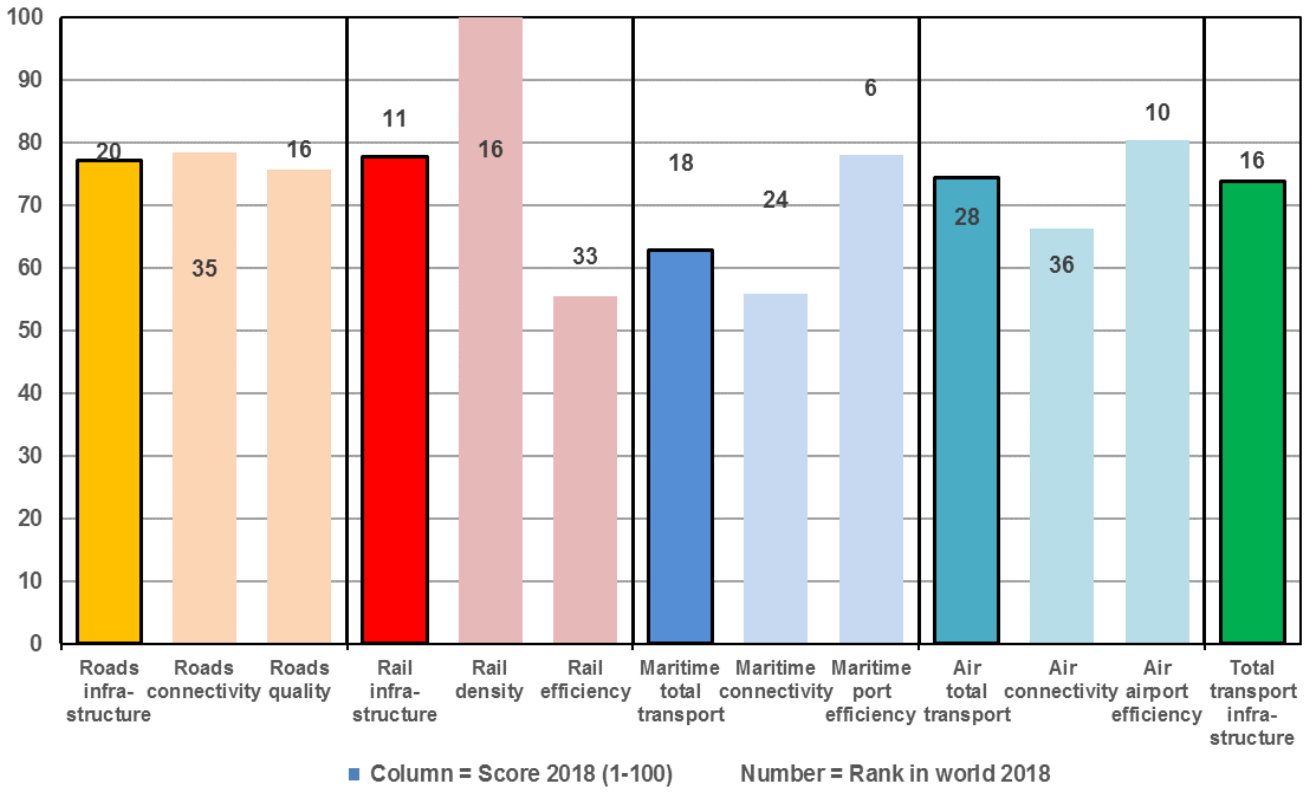
| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 83% | 50% | 0% | not applicable |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Denmark

Overall, Denmark scores relatively high in the World Economic Forum's (WEF) ranking on transport infrastructure quality, but it is not among the top performers. Its position in the international comparison recently deteriorated, which could be related to relatively low levels of investment in infrastructure in the 2000s. However, transport infrastructure investment has picked up again in the years from 2010 to 2016 (from 0.5 % to 0.8 % of GDP).[79]

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.




[79] Source: OECD, International Transport Forum.

# Germany

## Main current issues in Germany

### Issue 1 - Transport infrastructure

The quality of the German transport infrastructure is generally high and above EU average. However, investment levels in the past have been insufficient and led to an investment backlog especially in rail infrastructure, bridges and in municipalities in general. Investment in transport infrastructure over the last years has only increased nominally but in real terms investment as a share of GDP has stayed constant below 0.6% and thus even below pre-crisis levels.[80] Consequently, the increases might be insufficient to address the investment backlog and improve the infrastructure according to future needs at the same time.

Policy measures taken at national level to relieve municipalities' financially are only able to address the investment backlog in transport infrastructure to a limited extent.

A recent estimate by Germany assumes the between 2021 and 2030 EUR 115 billion would be needed on the German sections of the TEN-T Core and Comprehensive Networks.[81] The German Infrastructure Plan 2030, which provides the basis for transport infrastructure investment planning in Germany for the next 15 years, fully reflects the requirements set in the TEN-T regulation. However long term political and financial commitment at national and regional level is often lacking to complete important cross-border infrastructure, mainly in the railway sector. As Germany is a mayor transit country, this is not only detrimental to the functioning of the internal market but also contradicts the modal shift and climate targets set at European as well as at national level.

The federal transport infrastructure company has now been set up formally but will only be operational in 2021 and able to address the complex planning responsibilities across the different levels of Government.

### Issue 2 – Competition in the rail sector

Competition in the railway sector is increasing in the regional and freight passenger sectors. In contrast, the market share of new entrants on the long distance passenger train services market remains very low (< 1% in 2016 with no progress perceived in 2017 and 2018). This is mainly due to the high-level of track-access charges for long-distance passenger rail transport, which result in high operating costs, the necessity for sizeable investments in suitable roiling stock and the need to secure attractive infrastructure slots.

The market share of new entrants on suburban and regional passenger railway networks has been consistently rising since 2002 and has reached 33% in 2016.[82] In 2017 and 2018, respectively 45% and 66% of train/km on suburban and regional railway networks has been tendered competitively.[83] For rail freight the market share of new-entrants is close to 50%. The rail freight masterplan of 2017[84] introduces 66 measures to support rail freight, including the decrease of track access charges for rail infrastructure.

---

[80] European Commission, Eurostat 2018.

[81] European Commission, Delivering TEN-Facts and figures, 2017.

[82] Bundesnetzagentur, Market Analysis Railway, 2017.

[83] BAGSPNV, Zahlen-Fakten, 2018.

[84] BMVI, Masterplan Schienengüterverkehr, 2017.

## Key facts and figures on transport in Germany

### Modal split

Germany records a high use of passenger cars and in 2016 car trips represented more than 84% of the passenger-kilometres travelled, above the EU average. On the other hand, Germany records a lower use of buses and coaches than the EU average, while rail passenger transport is slightly higher.

For land freight transport, the road transport covers the largest share of freight transport activity, about 70% of all tonne-kilometres driven. In addition Germany has a higher share of rail and inland waterway transport than the EU average. Over time, the road freight sector's modal share in Germany has grown in relation to both rail and inland waterways freight transport.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Germany | 84.3% | 5.7% | 8.5% | 1.5% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Germany | 70.3% | 18.2% | 8.5% | 2.9% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the World Bank, the logistics sector in Germany is among the best performing in the world, and is topping the World Bank's ranking of the LPI. This is mostly because of its performance in terms of logistics infrastructure quality, logistics competence and customs procedures.

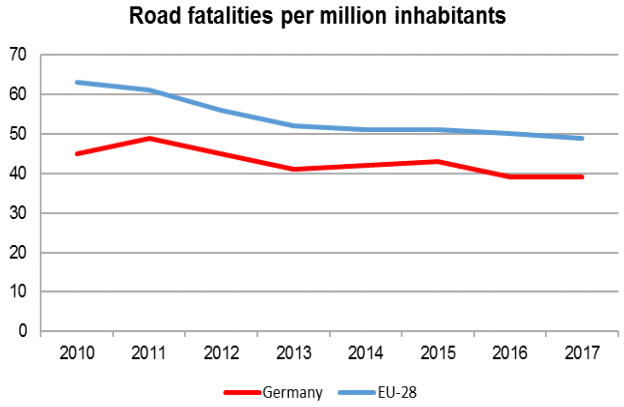
World Bank Logistics performance indicator

| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 1 | 1 | 1 |
| Score | 4.12 | 4.23 | 4.2 |
| Customs | 2 | 2 | 1 |
| Score | 4.10 | 4.12 | 4.09 |
| Infrastructure | 1 | 1 | 1 |
| Score | 4.32 | 4.44 | 4.37 |
| International shipments | 4 | 8 | 4 |
| Score | 3.74 | 3.86 | 3.86 |
| Logistics competence | 3 | 1 | 1 |
| Score | 4.12 | 4.28 | 4.31 |
| Tracking & tracing | 1 | 3 | 2 |
| Score | 4.17 | 4.27 | 4.24 |
| Timeliness | 4 | 2 | 3 |
| Score | 4.36 | 4.45 | 4.39 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

The stock of registered passenger cars in Germany has seen a steady increase in recent years to a total of more than 45 million registered cars. While the number of registered passenger cars is increasing, the road fatalities have decreased. In 2017, Germany reported 39 dead per million inhabitants, the lowest figure ever (EU average: 49).

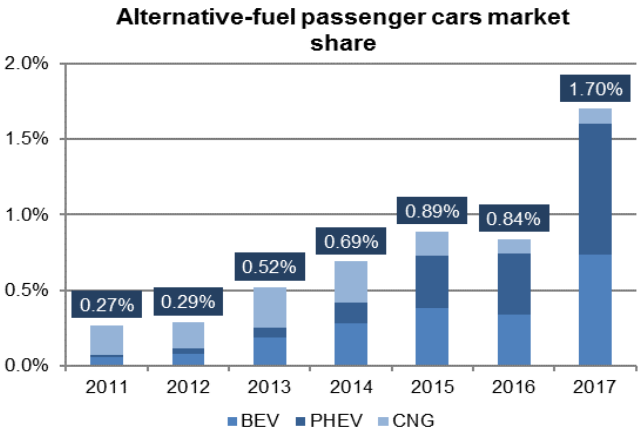



Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The number of alternative-fuelled cars is increasing: the share of new passenger cars using alternative fuels has more than doubled from 2016 to 2017.

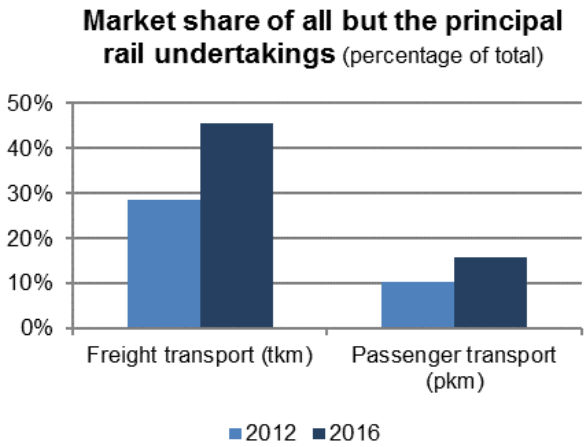
Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).




## Market opening in the railway sector

There is no organisational and decision-making independence of *DB Netz* from the *Deutsche Bahn (DB)* holding. The holding exerts full management control over *DB Netz*, as for the other subsidiaries. In addition, *DB Netz* has to transfer its profits to the holding.

Competition in the markets for passenger and freight transport in Germany is continuing to develop slowly. Market shares of the incumbent *DB* still show monopolistic structures: 99% in long distance passenger transport, about 80% in regional passenger and about two thirds in freight traffic. *DB* will keep this dominance if no measures are taken. The development of long distance coach traffic shows the market need for alternatives to the incumbent in long distance rail services.

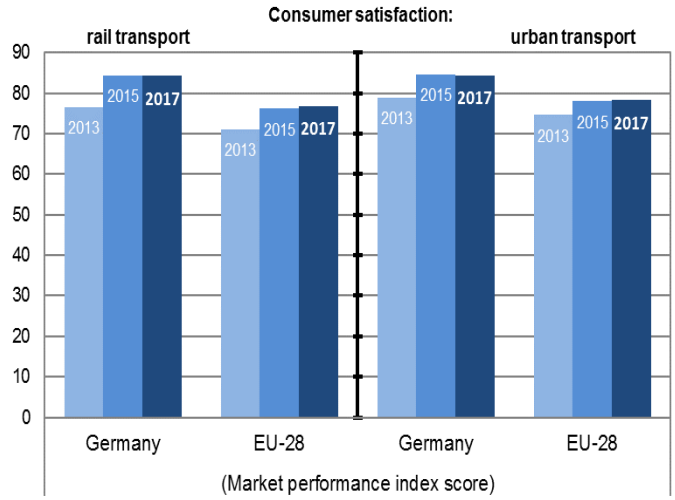



Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

Consumer satisfaction with rail and urban transport is above the EU average in Germany, although it is stagnating since 2015.

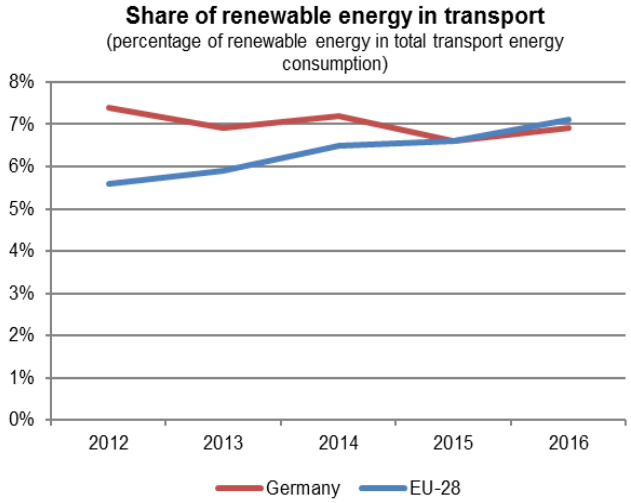
A special Eurobarometer Survey in 2018 on the satisfaction with rail passenger transport (Flash Eurobarometer 463) revealed that passengers in Germany, more than on average in the EU, are dissatisfied with the availability of seats and Wi-Fi in trains and with their punctuality. Also the satisfaction with the accessibility of trains and stations for passengers with reduced mobility is below EU average.




Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

The share of renewable energy in transport seems to be stagnating, contrary to the increasing trend on average in the EU. The distance is growing to the target share of 10% of renewable energy in transport established by the Renewable Energy Directive.




Source: Eurostat.

## Completion of TEN-T Core Network in Germany

Germany's contribution to the TEN-T Core Network is almost complete for conventional rail and complete for inland waterways.

Substantial gaps remain for the road and high speed rail networks.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 59% | 94% | 58% | 100% |

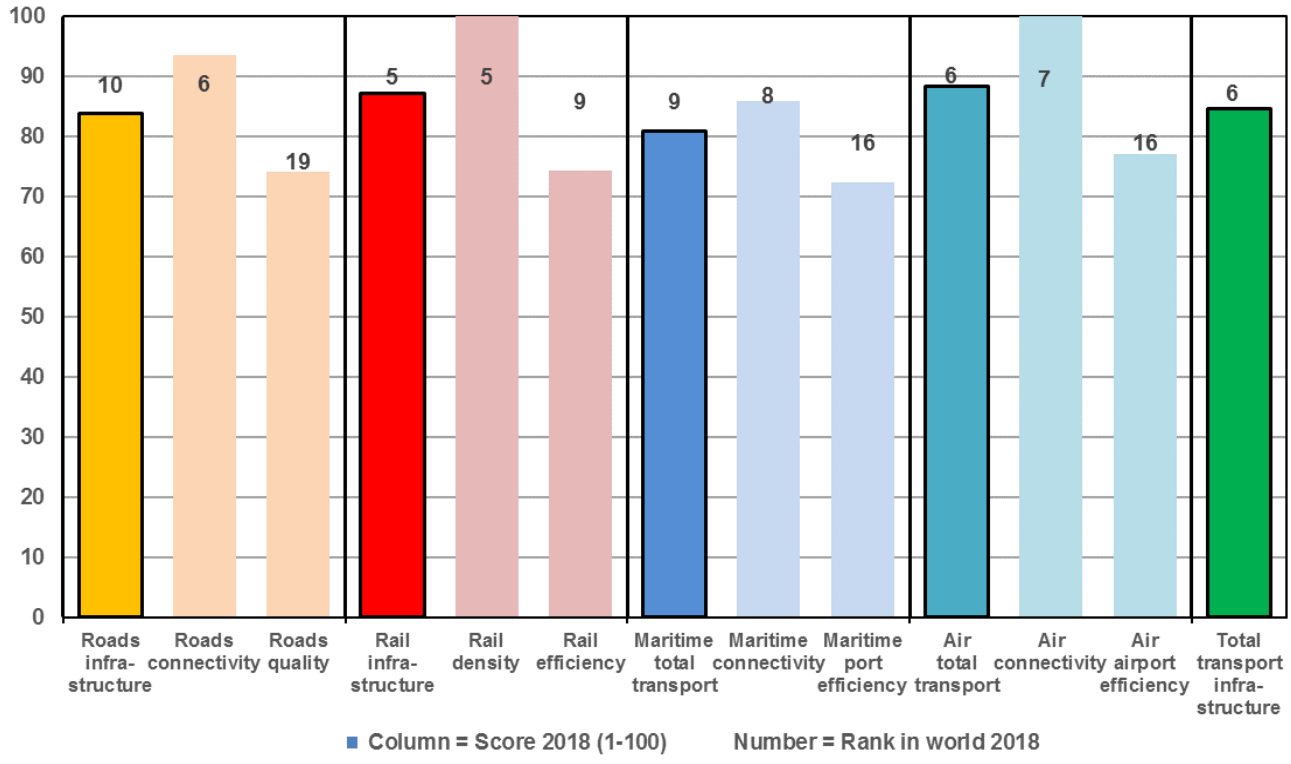
Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Germany

Germany ranks among the top European countries regarding the perception of its transport infrastructure although numbers have been declining in recent years especially for road infrastructure. The fall in the subjective perception of the road quality can be attributed to the rise in traffic congestion. Germany is one of the top European countries in terms of time spent in traffic (also due to the fact that it is a key transit country).

Another underlying factor is the increasing concern about the deteriorating state of the existing rail and road infrastructure (in particular bridges) and insufficient funds for road maintenance. The effects of the recently increased public investment in the infrastructure, especially in maintenance spending, remains to be seen.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Estonia

## Main current issues in Estonia

### Issue 1 - Rail Baltica

In the context of the so-called *Rail Baltica* project, the grant agreement for the EUR 110 million allocated to the Baltic States through the third Connecting Europe Facility call in 2016 has not been signed yet and is at risk. This situation should be addressed by moving towards a much more integrated project delivery organisation. The Commission is discussing this very actively with the authorities of the Baltic States.

*Rail Baltica aims to link Warsaw via Elk, Kaunas and Riga to Tallinn by rail, with a connection to Vilnius. The targeted date for completing the project (2025) was reaffirmed by the Intergovernmental Agreement ratified in 2017 by Estonia, Latvia and Lithuania. The updated cost-benefit analysis of the project, delivered in April 2017, confirmed the expected positive impact on the economic growth in the region and on the environment due to the likely modal shift from road to rail in passenger and freight transport (Ernst & Young Baltic Ltd (2017).[85] In October 2017, it was agreed to review the organisational setup of the Rail Baltica project in order to speed up its implementation. The aim is to move to a highly integrated project delivery organisation, notably to ensure the efficiency of EU funding in the framework of the Connecting Europe Facility, cost minimisation, full interoperability and synchronisation of works.*

### Issue 2 - Greening of transport in Estonia

Estonia is unlikely to reach its 10%-target share of renewable energy in transport by 2020. The sales of alternative fuel vehicles have decreased and greenhouse gas emissions from transport are increasing. Estonia has the most environmentally unfriendly new vehicle fleet in the EU with an average $CO_2$ emission of 134 grams per kilometre for passenger cars compared to an EU average of 118 grams in 2016. Transport taxes (excluding fuel taxes) remain amongst the lowest in the EU as there is no charge or $CO_2$ based tax on vehicles applying to road transport, although a new time-based charge on heavy goods vehicles was introduced in 2018.

### Issue 3 - Investment sustainability

The sustainability of overall transport infrastructure is not ensured. Investments into transport infrastructure depend mainly on EU funds with a focus on major projects, such as Rail Baltica. In particular, investment into secondary infrastructure and maintenance of existing infrastructure is not actually ensured.

[85] http://www.railbaltica.org/cost-benefit-analysis/.

## Key facts and figures on transport in Estonia

### Modal split

The introduction of free public transport in the capital Tallinn where one third of the population lives, has increased the use of public transport by 13%. In general, buses and coaches remain the main form of public transport with 20% share of total passenger transport. The use of passenger cars is below the EU average. The modal split in freight land transport is also favourable with only 47.6% road transport as compared to 71.7% of EU average.

Modal split for passenger and freight transport in 2016

| | Modal split for passenger transport (shares based on passenger-kilometres) | | | |
|---|---|---|---|---|
| | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
| **Estonia** | 79.5% | 17.7% | 2.0% | 0.8% |
| **EU-28** | 81.3% | 9.3% | 7.6% | 1.8% |

| | Modal split for freight transport (shares based on tonne-kilometres) | | | |
|---|---|---|---|---|
| | Road | Railways | Inland Waterways | Pipeline |
| **Estonia** | 57.1% | 42.9% | 0.0% | 0.0% |
| **EU-28** | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

The World Bank Logistics performance indicator for Estonia has improved in 2018 compared to 2014, with Estonia being in 36th position in 2018 compared to 39th in 2014 and 65th in 2012. Estonia is performing best in timeliness and customs and worst in infrastructure. For infrastructure, logistics competence and tracking and tracing, Estonia ranks between 40th and 44th globally.

World Bank Logistics performance indicator

| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| **LPI Rank** | **39** | **38** | **36** |
| Score | 3.35 | 3.36 | 3.31 |
| **Customs** | **26** | **29** | **28** |
| Score | 3.40 | 3.41 | 3.32 |
| **Infrastructure** | **35** | **44** | **44** |
| Score | 3.34 | 3.18 | 3.1 |
| **International shipments** | **34** | **56** | **39** |
| Score | 3.34 | 3.07 | 3.26 |
| **Logistics competence** | **39** | **46** | **40** |
| Score | 3.27 | 3.18 | 3.15 |
| **Tracking & tracing** | **47** | **48** | **43** |
| Score | 3.2 | 3.25 | 3.21 |
| **Timeliness** | **49** | **20** | **30** |
| Score | 3.55 | 4.08 | 3.8 |

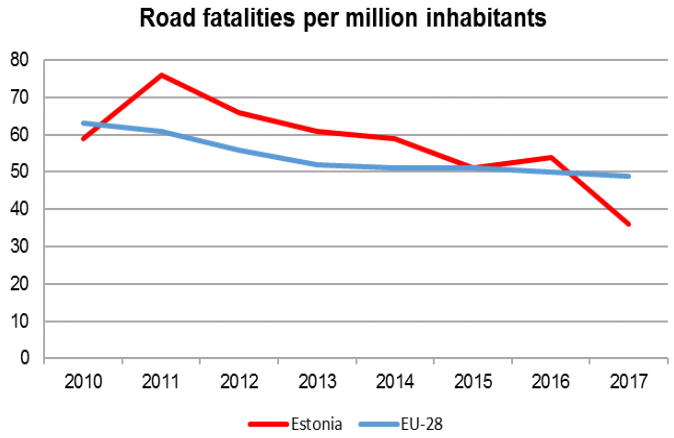
Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

In 2017, there were about 36 road fatalities per million inhabitants in Estonia. This reflects an impressive decrease of 39% on fatalities since 2010 compared to 20% for the EU average.

Fatalities in rural areas are highly over-represented in Estonia compared to the EU average. Speeding has increased on high speed rural roads in Estonia, as well as the percentage of speed offenders.

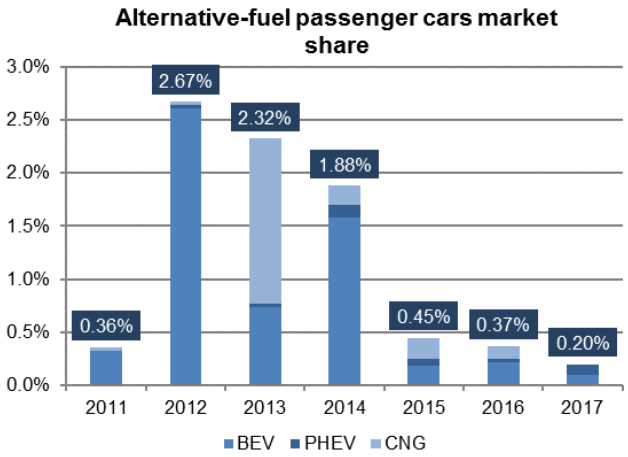
The alcohol limit of 0.2‰ in Estonia is lower than the common limit of 0.5‰ in the EU.




Source: DG MOVE - CARE data.

## Alternative fuels in road transport

Between 2012 and 2014, Estonia built up a nation-wide network of fast-charger stations in the framework of the Electro-Mobility Programme. However, the number of registered new alternative fuel vehicles declined significantly between 2014 and 2015 after abolition of a support scheme, demonstrating that without the direct support for buying the specialised vehicles, the take up of either electric or bio-methane run vehicles is unlikely to be considerable. The Electro-Mobility Programme helped to introduce slightly more than 1 000 cars into circulation.

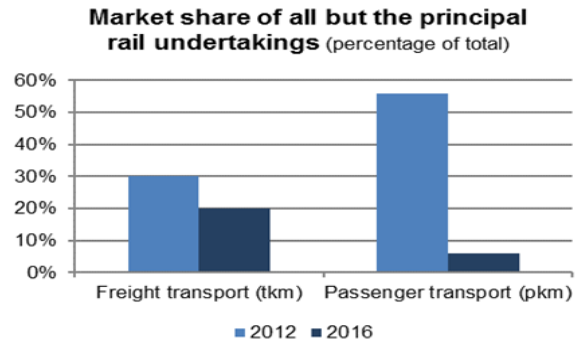



Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).

## Market opening in the railway sector

As regards the market share of all but principal rail undertakings as an indicator of access to market for new commercial operators, in rail freight Estonia has an average share compared to other EU countries.

In passenger rail transport almost all operations are run by a state-owned enterprise since January 2014. This marks a re-nationalisation of the sector after previous market opening.

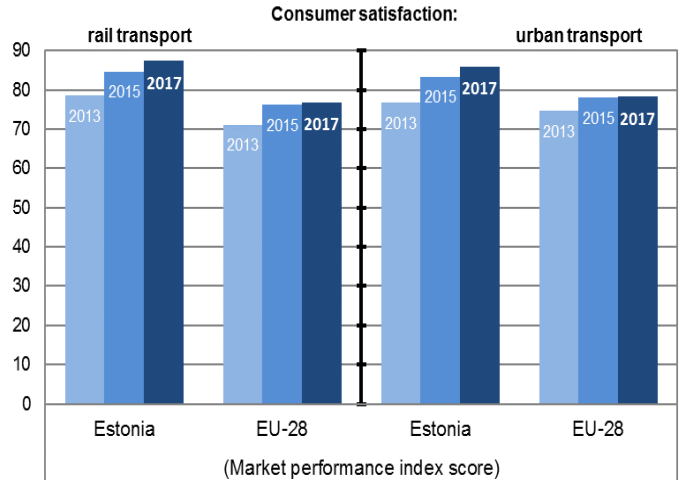



Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

Consumer satisfaction with both rail and urban transport is relatively high in Estonia. The increase in satisfaction since 2013 shows a dynamic upward trend.

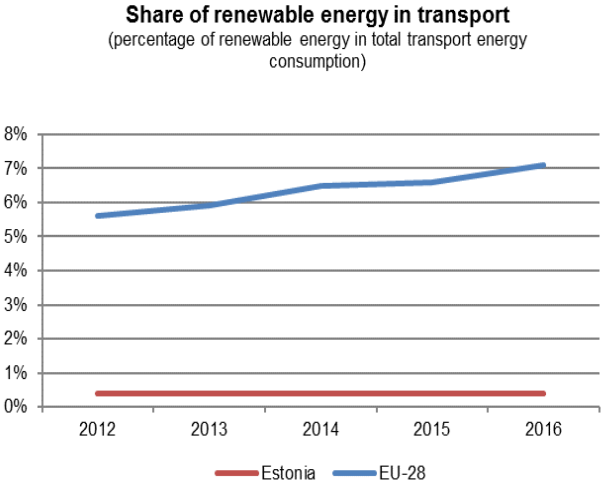
However, a 2018 Eurobarometer Survey on satisfaction with passenger rail transport (Flash Eurobarometer 463) has shown that passengers in Estonia are less satisfied with the frequency of trains and with the availability of seats than the EU average.




Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

The current level of renewables in transport remains at 0.4%. Estonia is unlikely to reach its 10%-target share of renewable energy in transport by 2020. Estonia amended the Liquid Fuel Act with the aim to incentivise biofuels and is promoting the use of bio-methane in public transport through requirements in public transport concession tenders. Excise tax policy is also used to promote LPG and bio-methane use.




Source: Eurostat.

## Completion of TEN-T Core Network in Estonia

The completion of the TEN-T Core Network in Estonia has not made much progress so far.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 34% | 3% | 0% | not applicable |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

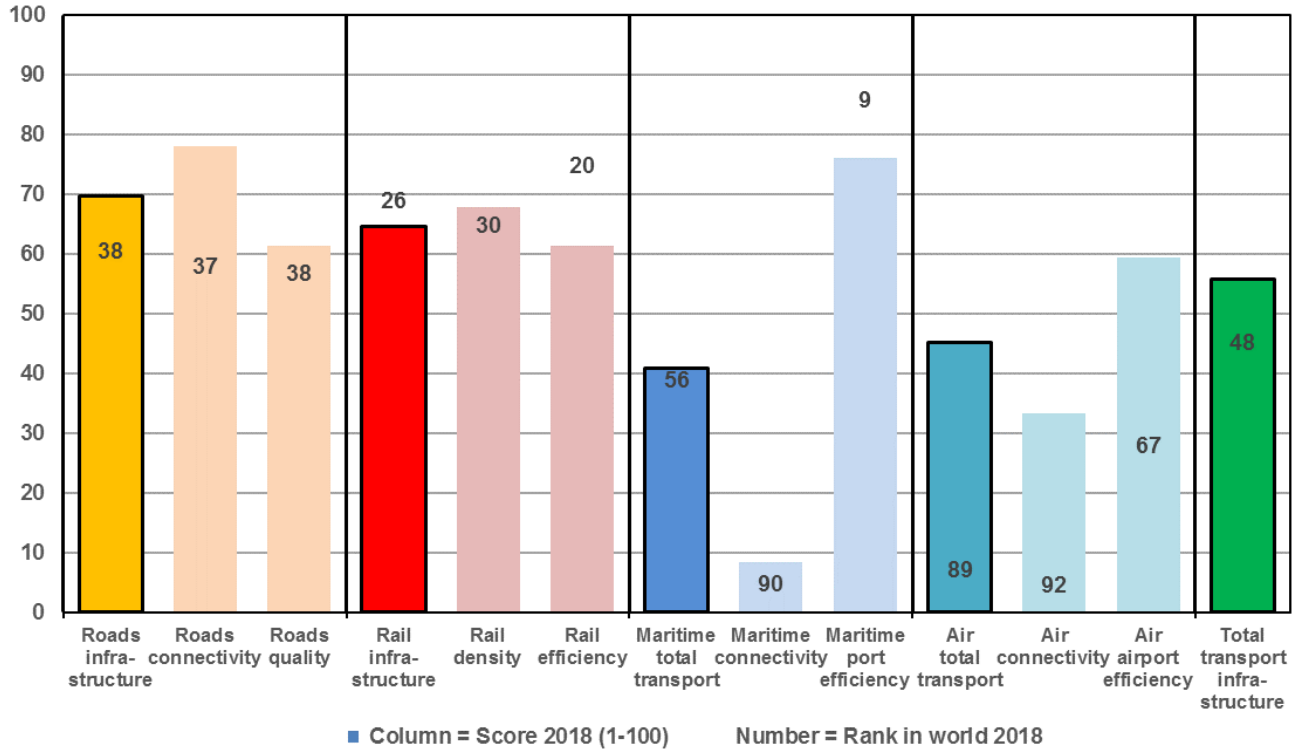
## Quality of the transport infrastructure in Estonia

Compared to many other Member States that joined since 2004, Estonia ranks highly in the World Economic Forum's ranking of infrastructure quality. In particular, the efficiency of the seaports is considered to be high.

Similar to the maritime infrastructure, the airport infrastructure is marked by low connectivity. Yet destinations directly accessible from Tallinn international airport are increasing. The airport efficiency is good: waiting times are short and the airport is well connected via public transport. Tallinn airport is one of the first airports in Europe with a tram connection to the city centre.

The overall quality of land transport infrastructure is relatively high. This is despite Estonia having no highways and only limited km of two-lane road. Improvement of the secondary road infrastructure makes slow progress. While the passenger railways have considerably improved in recent years, there are still only limited connections.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Ireland

## Main current issues in Ireland

### Issue 1 - Investment in transport infrastructure

Ireland invests less in transport infrastructure as a proportion of GDP than other EU countries and less than the estimated level needed to maintain the current system. Thus, while increased demand for transport is driven by economic growth, investment in the sector is still constrained. There is a compelling case for increased investment in the transport sector where issues are emerging which if not addressed may serve as a constraint on continued economic growth. The issues are around both investment in new infrastructure in particular for public transport, but also regarding the maintenance of the current primarily road infrastructure which is not adequately resourced. Ireland also has a poorly developed railway infrastructure and the lowest rail electrification rate in the EU (2.7% in 2016).[86]

### Issue 2 –Use of public transport

Ireland's urban transport policy emphasis to date has been on shifting commuters from their private cars to other modes including public and sustainable transport. In 2017, 251 million passenger journeys were provided by the bus operators *Dublin Bus* and *Bus Éireann,* the rail company *Iarnród Éireann* and the Dublin tramway *Luas* on their public service obligation services. This was an increase of over 16 million passenger journeys, or 7% compared to 2016. The strong rebound of the Irish economy that started in 2014 has continued and gained further momentum. This is already putting pressure on transport infrastructure and commuting times in urban areas are increasing.

### Issue 3 – Greening of the transport sector

Only limited progress has been achieved in decarbonising key parts of the Irish economy, mainly in agriculture, road transport and the residential sector. Ireland only has a small number of large urban areas, all of which face serious congestion and public transport issues. For this reason, in the European Semester 2018, Ireland received the country-specific recommendation to ensure the timely and effective implementation of the National Development Plan, including in terms of clean energy and cleaner transport.

Given that more needs to be done to promote alternative fuels in line with the Paris Agreement and the high level of transport emissions, it is noted that diesel-powered vehicles accounted for 71% of all new vehicle sales in Ireland in 2016. The need for further public infrastructure investment has been demonstrated, in particular public transport and cycling infrastructure in the main cities, and consideration needs to be given to the move away from diesel fuelled public transport fleets.

### Issue 4 – Brexit related issues

Over 80% of Irish road freight to mainland Europe currently transits the UK using the so-called "land-bridge route". Statistics for 2016 show that over 40% of maritime traffic from Ireland is with ports in the United Kingdom. A smaller, but nonetheless significant share of Irish traffic to Great Britain uses ports in Northern Ireland.[87] The effect of Brexit on these transport routes remains to be seen.

---

[86] Source: EU Transport in figures – statistical pocketbook 2018.

[87] Source: Central Statistics Office Ireland, quoted in: T. Ferris (2017): "Implication of Brexit for Irelands Transport Sectors", The Institute of International and European Affairs, Dublin, https://www.iiea.com/publication/implications-of-brexit-for-irelands-transport-sectors/.

## Key facts and figures on transport in Ireland

### Modal split

Ireland shows a high level of reliance on cars for passenger transport and in 2016 car trips represented almost 80% of the passenger-kilometres travelled, just below the EU average. On the other hand, Ireland records a higher use of buses and coaches than the EU average, while rail passenger transport is less than half of the EU average. For land freight transport, the road transport covers almost the totality of the freight transport activity, with 99% of all tonne-kilometres driven. Rail accounts for the remaining 1%.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Ireland | 79.6% | 17.2% | 2.9% | 0.3% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Ireland | 99.1% | 0.9% | 0.0% | 0.0% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the World Bank, the performance of Ireland's logistics sector ranked 29th in worldwide comparison in 2018.

In comparison to 2014 and 2016, the performance has worsened for almost all partial indicators, mainly when it comes to customs procedures, but also regarding infrastructure, logistics competence, the tracking of shipments and the timeliness of deliveries.

World Bank Logistics performance indicator

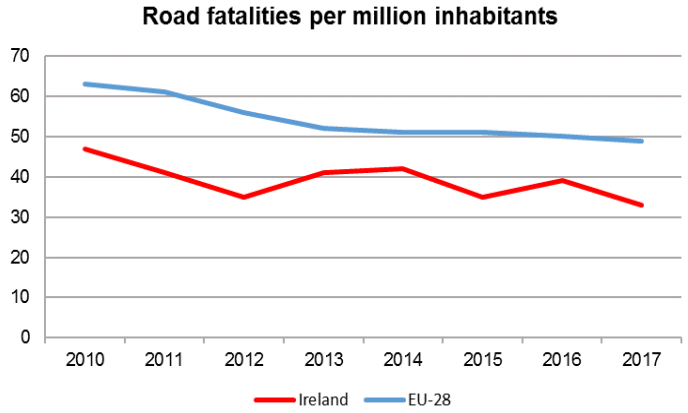
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| **LPI Rank** | **11** | **18** | **29** |
| Score | 3.87 | 3.79 | 3.51 |
| **Customs** | **12** | **25** | **26** |
| Score | 3.80 | 3.47 | 3.36 |
| **Infrastructure** | **16** | **22** | **29** |
| Score | 3.84 | 3.77 | 3.29 |
| **International shipments** | **27** | **10** | **28** |
| Score | 3.44 | 3.83 | 3.42 |
| **Logistics competence** | **9** | **20** | **26** |
| Score | 3.94 | 3.79 | 3.6 |
| **Tracking & tracing** | **3** | **16** | **28** |
| Score | 4.13 | 3.98 | 3.62 |
| **Timeliness** | **16** | **29** | **33** |
| Score | 4.13 | 3.94 | 3.76 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Ireland belongs to the best performing countries in Europe with regards to road safety. In 2017, there were about 33 road fatalities per million inhabitants in Ireland, compared to 49 for the EU average.

Significant changes have been made to road safety policy over the past 15 years such as the introduction of a penalty point system and random breath testing, which have contributed to the decreasing trend.

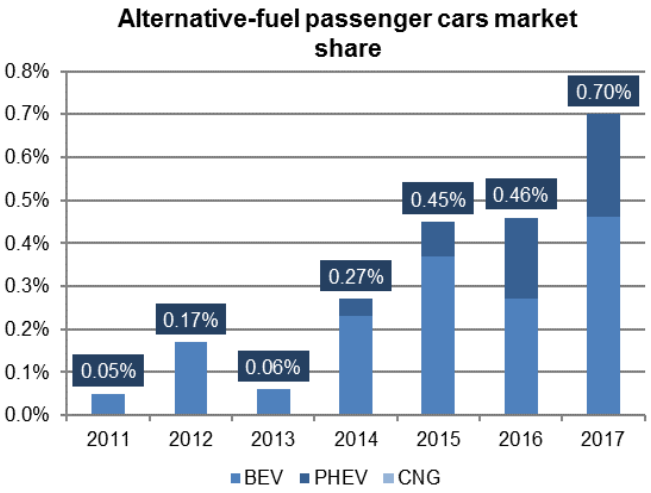



Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The market share of new passenger cars using electric propulsion has more than tripled over the period between 2011 and 2016 and almost doubled from 2016 to 2017. Overall, it is still very low though. According to the European Alternative Fuels Observatory, there were 7 public charging points per PEV in 2018 (8 on average in the EU).

Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).




## Market opening in the railway sector

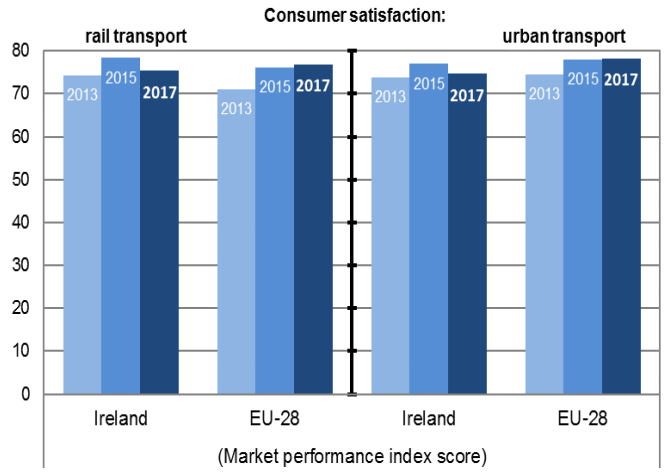
Rail services in Ireland are provided by *Iarnród Éireann* (which is the only operator). Most routes in the Republic radiate from Dublin. Total length of rail lines in use as of 2016 is 1 894 km.

Ireland has a very low density of rail compared to other EU countries and the majority of Irish rail travel is fuelled by diesel, with a Dublin commute line (*DART*) being the one exception.

## Consumer satisfaction with public transport

Consumer satisfaction with public transport in Ireland is very close to the EU average.

However, the satisfaction, as measured in the 2017 survey, is substantially lower than what it was in 2015.

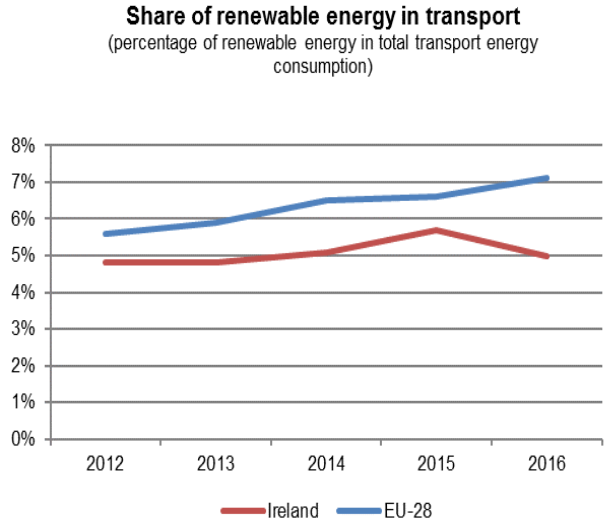



Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

The share of renewable energy in transport has fluctuated, but has kept pace with the EU average until 2015. In 2016, the gap between the value for Ireland and the EU average has widened.

In Ireland, the support scheme for renewable energy sources used in the transport sector is a quota system. This scheme obliges fuel suppliers to ensure that biofuels make up a defined percentage of the company's total annual sale of fuel.




Source: Eurostat.

## Completion of TEN-T Core Network in Ireland

Ireland has made good progress in completing its share in the TEN-T Core Network.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 91% | 92% | not applicable | not applicable |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

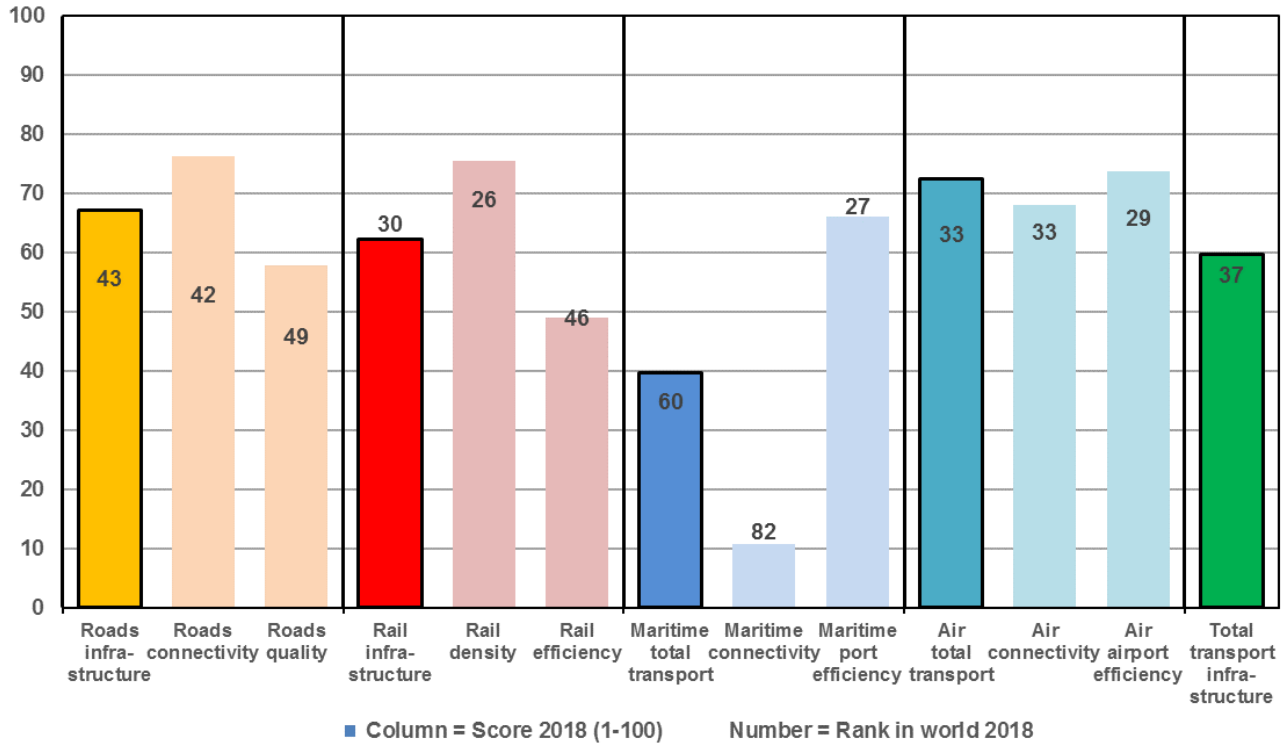
## Quality of the transport infrastructure in Ireland

The perceived quality of Ireland's transport infrastructure has been increasing over the years, and in the period 2015-2016 all transport infrastructure scores converged between the 25th and the 35th places in the world ranking. However, ratings of the quality of the Irish transport infrastructure have decreased slightly since then. In 2018, Ireland's overall transport infrastructure ranking in the world is the 37th place.

Rail transport infrastructure is lagging behind, despite the improvements over time, probably due to the small share of electrified rail lines in the country (2.7% of the total rail lines in 2016).

Lack of capital investment over the last number of years, specifically in land transport, has resulted in congestion and bottlenecks which are beginning to impact on day-to-day lives. While airports are of an acceptable standard, Ireland's roads, rail and sustainable transport assets need investment for both maintenance and new projects.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Greece

## Main current issues in Greece

### Issue 1 – Road safety: high fatality rates

Greece has one of the highest fatality rates in the EU. The situation of vulnerable road users is of special concern in Greece, in particular the high number of motorcyclists. Effectiveness of traffic law enforcement is assessed as quite low. Seat-belt wearing rates are lower than on average in the EU.

### Issue 2 – Rail freight and passenger traffic

The share of rail freight in the modal split remains low due to the sparse rail network, the non-developed market, and missing links with the main seaports. The modal share of rail passenger transport in land transport is one of the lowest in the EU.

### Issue 3 – Rail infrastructure

The density of the rail network per surface and per population is one of the lowest in the EU. The low capacity of the railway lines places a limit on the number of high speed trains that can use the existing network. The limited coverage of the rail network and its low capacity put severe limitations on mainly cargo but also passenger traffic flows.

### Issue 4 – Air: implementation of the law on the restructuring of the civil aviation authority

En route traffic increased by more than 11% during the first eight months of 2018 year on year. En route delay of the Greek air navigation service provider *HCAA* in the first eight months has more than doubled mainly due to capacity and staff problems at *HCAA*.[88]

### Issue 5 – Airport infrastructure

The average annual growth in the number of flights is forecasted to be 2.3% until 2040. This growth will lead to a total airport capacity gap of less than 50.000 flights per year.[89]

### Issue 6 – Port infrastructure

The extensive network of non-TEN-T ports is facing difficulties in obtaining the necessary funding to cover maintenance and re-investment costs.

### Issue 7 – Financing investments in infrastructure

Traditional funding sources, such as loan facilities and public investment programmes are becoming less sustainable, shifting the financing focus to the private sector.

---

[88] Source: Eurocontrol 2018.

[89] Source : Eurocontrol, European Aviation in 2040 - Challenges of Growth, 2018.

## Key facts and figures on transport in Greece

### Modal split

Greece records a high use of passenger cars. In 2016, car trips represented more than 80% of the passenger-kilometres travelled, close to the EU average. Greece records a much lower use of railways than the EU average. Yet the share of buses and coaches passenger transport is twice the EU average.

For land freight transport, road covers the largest share of freight transport activity (about 98% of all tonne-kilometres driven) leaving very small shares for the other modes of transport.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Greece | 80.8% | 16.9% | 1.0% | 1.3% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Greece | 97.6% | 1.3% | 0.0% | 1.1% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

The performance of the Greek logistics sector is average in international comparison, according to analysis carried out by the World Bank.

It should be noted, however, that the performance has slightly improved overall between 2016 and 2018, notably in terms of international shipments.

World Bank Logistics performance indicator

| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 44 | 47 | 42 |
| Score | 3.2 | 3.24 | 3.2 |
| Customs | 28 | 55 | 47 |
| Score | 3.36 | 2.85 | 2.84 |
| Infrastructure | 42 | 37 | 38 |
| Score | 3.17 | 3.32 | 3.17 |
| International shipments | 62 | 64 | 35 |
| Score | 2.97 | 2.97 | 3.3 |
| Logistics competence | 40 | 60 | 48 |
| Score | 3.23 | 2.91 | 3.06 |
| Tracking & tracing | 61 | 30 | 45 |
| Score | 3.03 | 3.59 | 3.18 |
| Timeliness | 54 | 34 | 42 |
| Score | 3.5 | 3.85 | 3.66 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

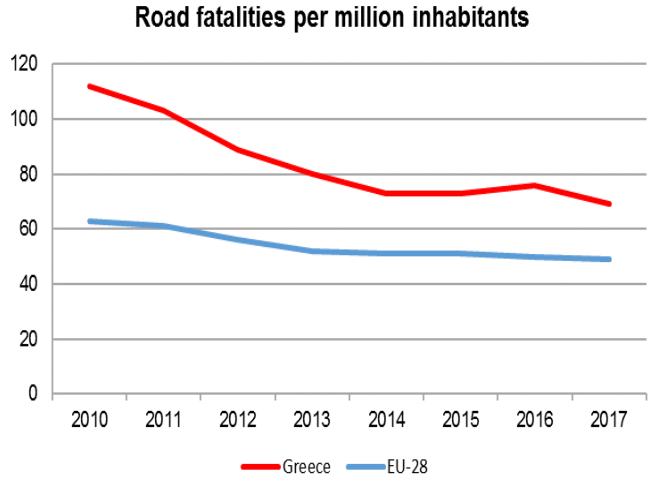
## Road safety

Road fatalities have decreased from 2010 to 2017 by 41% compared to an EU average decrease of 20%.

However, current levels remain significantly higher than the EU average and Greece has by far the highest fatality rate amongst older EU Member States (69 versus 43 in the EU-15).

The situation of motorcyclists is of special concern in Greece. The share of motorcyclist fatalities (29%) is significantly higher than the EU average (15%).

Effectiveness of traffic law enforcement is assessed as quite low. Seat-belt wearing rates are lower than the EU average. Road-side surveys for drink-driving have increased in recent years and the percentage of offenders has decreased.

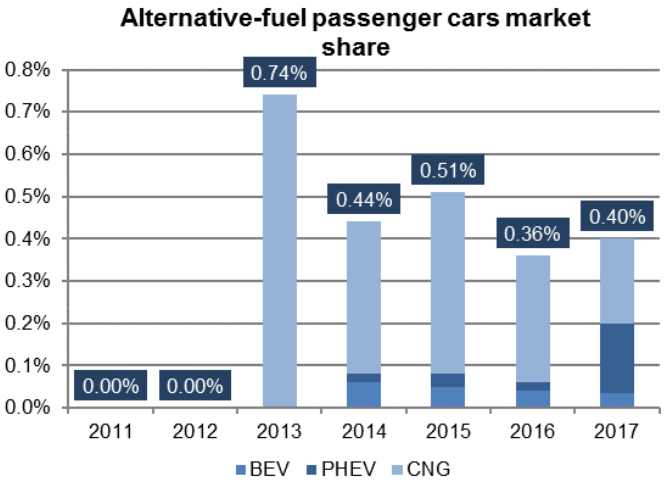



Source: DG MOVE - CARE data.

## Alternative fuels in road transport

Greece generally has a very low share of alternative fuels in its market for new passenger cars. The main alternative fuel used is compressed natural gas, however, amounts are marginal.

Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).



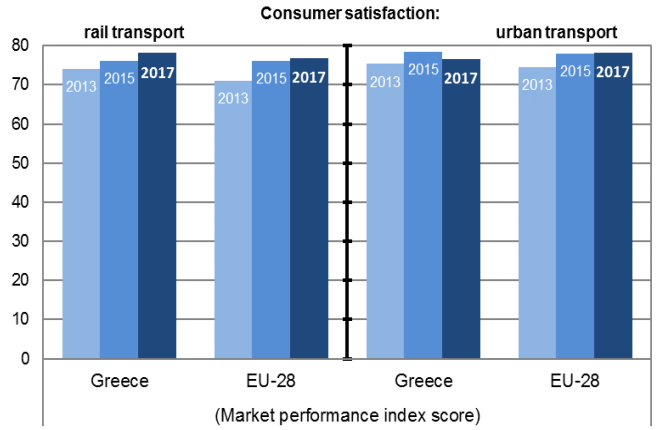

## Market opening in the railway sector

The state-owned railway company *TRAINOSE* has been privatised and was 100% taken over by the Italian *Ferrovie Dello Stato* in 2016. *Ferrovie* is expected to increase commercial transport links as well as passenger transport and has already raised EUR 1 billion funding to proceed with investments and upgrade the network.

These commercial transport links are expected to further increase following the arrival of two new rail freight carriers, *Rail Cargo Logistics Goldair SA* and *Piraeus Europe Asia Rail Logistics (Pearl) SA*. However, further liberalisation and increase of rail's modal share remains a big challenge for Greece.

## Consumer satisfaction with public transport

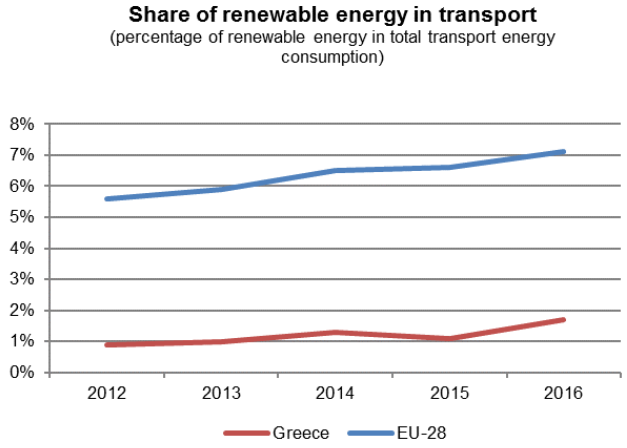
The consumer satisfaction with public transport in Greece corresponds to the EU average.




Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

The share of renewables in transport accounted for only 1.7% in 2016, against an objective of 10% by 2020.




Source: Eurostat.

## Completion of TEN-T Core Network in Greece

The completion of the TEN-T Core Network in Greece is making good progress for road and conventional rail. Yet it is lagging behind for high speed rail.

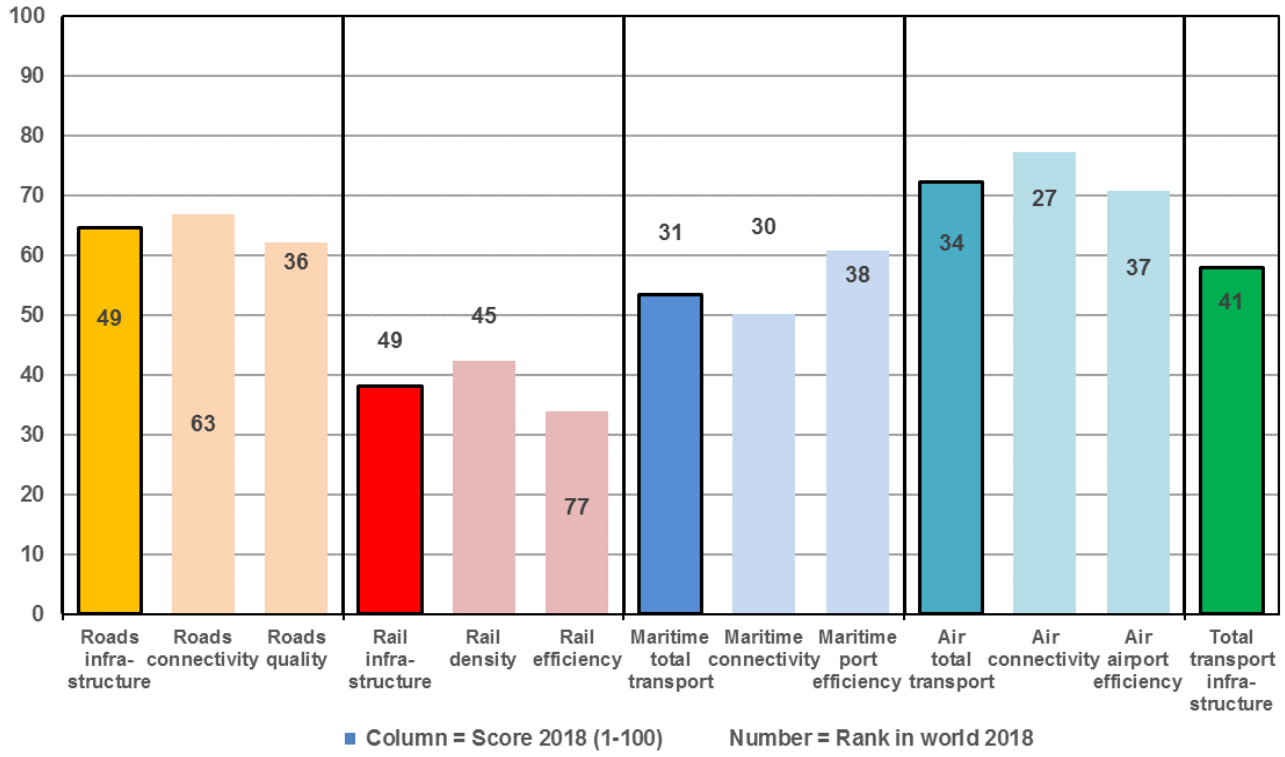
| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 76% | 80% | 55% | not applicable |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Greece

According to the Global Competitiveness Report of the World Economic Forum, Greece ranks 41st among all countries regarding the perception of its transport infrastructure in 2018. The relatively good perception of the road quality can be attributed to the impending completion of the motorways network. On the other hand, poor perceptions of the quality of the railroad network and its performance hint at the existence of major shortcomings.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Spain

## Main current issues in Spain

### Issue 1 - Competition in freight and passenger rail services

In railways, the market share of the incumbent operator (*RENFE Operadora*) has dropped to about 70% in 2016 in the freight market, while it remained at 100% in the passenger market. For the passenger market, Spain announced its intention to open up the market to competition several years ago, but has continued to postpone market opening. The opening of the passenger rail market has now been postponed until 2020 (i.e. when it becomes mandatory by virtue of the 4th Railway Package). Work on the transposition of the market pillar of the 4th Railway Package is underway: a draft law with amendments to the current railway sector legislative framework is in public consultation and its adoption is expected in 2018.

On the freight transport side, new operators, in addition to *RENFE Operadora*, are emerging since the railway network was opened up to competition, but this process is very slow.

### Issue 2 - Completion of Spain's rail TEN-T Core Network by 2030

The completion of Spain's TEN-T rail Core Network by 2030 could raise concerns given the current pace of implementation. Cross-border rail traffic of freight trains from Spain into France and Portugal remains a bottleneck for completing the Atlantic and Mediterranean corridors. The different gauges used in the neighbouring countries constitute a key barrier to the improvement of Spain's rail connectivity. Increased cooperation between Spain, France and Portugal in the implementation of rail interoperability is underway to overcome these obstacles.

### Issue 3 - Spanish freight transport relies mainly on road for the intra-EU trade exchanges

Serious road congestion problems appear repeatedly at cross-border points with France (Irun-Hendaye, La Jonquera). The planned completion of new high speed lines and removal of operational and administrative barriers for border crossings need to be pursued to achieve a significant modal shift to rail. The Motorways of the Sea could help to address the problem. However, a prerequisite is the improvement of the hinterland connections, in particular freight railway links, between ports in the Atlantic façade (e.g. Gijon) and in the Mediterranean coast (e.g. Valencia, Murcia), and the industrial production centres in the interior of the Iberian Peninsula. This would include a better use of the rail infrastructure for freight transport.

### Issue 4 - Competition in port services to raise ports' efficiency and competitiveness

Spanish ports play an important role for regional development purposes. A national long-term strategy for port development, establishing investment priorities for ports according to their role and function would help to ensure a better use of the extensive network of Spanish ports. In line with that strategy, ports should be able to adopt more efficient pricing policies, facilitating maritime trade options and ensuring long term recovery of infrastructural costs.

### Issue 5 – Electro-mobility

The Spanish National Policy Framework submitted under the Directive 2014/94/EU on the deployment of alternative fuels infrastructure has neither defined targets for electric vehicles nor for electric recharging points. On the other hand, a significant development is foreseen for natural gas vehicles (CNG and LNG) and liquefied petroleum gas (LPG) vehicles.

## Key facts and figures on transport in Spain

### Modal split

Road transport is predominant with a share of more than 90% of the total inland passenger transport in 2016 and 90% of the total inland freight transport.

Buses and coaches are used more in Spain compared to the EU average, but the share of rail transport is lower than the EU for both passenger and freight sectors.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Spain | 80.1% | 11.6% | 6.5% | 1.8% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Spain | 90.1% | 5.1% | 0.0% | 4.8% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the World Bank, the logistics sector in Spain has been performing slightly better in international comparison in 2018 compared to 2016. This is mostly because of an improvement in infrastructure and international shipments.

World Bank Logistics performance indicator

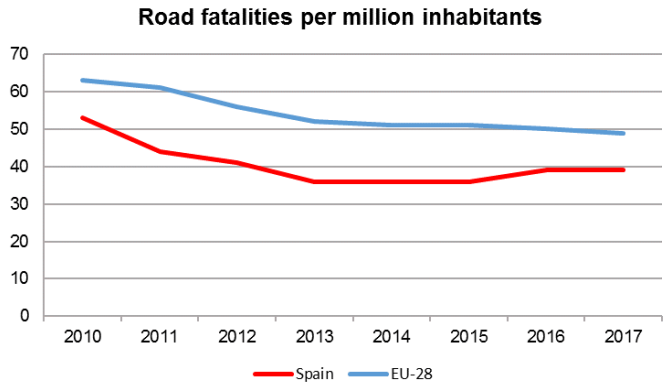
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 18 | 23 | 17 |
| Score | 3.72 | 3.73 | 3.83 |
| Customs | 19 | 24 | 17 |
| Score | 3.63 | 3.48 | 3.62 |
| Infrastructure | 20 | 25 | 19 |
| Score | 3.77 | 3.72 | 3.84 |
| International shipments | 21 | 22 | 6 |
| Score | 3.51 | 3.63 | 3.83 |
| Logistics competence | 12 | 23 | 18 |
| Score | 3.83 | 3.73 | 3.8 |
| Tracking & tracing | 26 | 23 | 19 |
| Score | 3.54 | 3.82 | 3.83 |
| Timeliness | 17 | 26 | 20 |
| Score | 4.07 | 4 | 4.06 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

During the last strategy period 2001-2010, Spain reduced the number of road traffic fatalities by 55%, well over the EU target of halving road deaths. The figures for 2017 show 39 deaths per million inhabitants and a 26% reduction in the number of fatalities in relation to 2010 (EU average: 20%). However this trend has slowed down in both Spain and the EU overall since 2013.

The best improvements over the last years are seen for young people and less for motorcyclists.



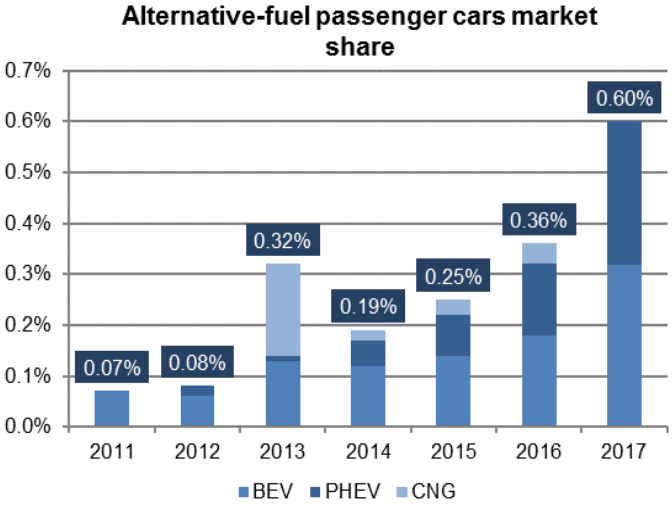

Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The Spanish National Policy Framework estimates a comparably low share of roughly 0.5 % electric vehicles on the road in 2020 and focusses on LPG and natural gas, for which substantial infrastructure is already in place. It considers strong growth of CNG and LPG vehicles and establishes appropriate refuelling infrastructure targets consistent with the vehicle projections. Yet the market share of electric vehicles has grown considerably in 2017.

Spain plans the deployment of 20 publicly accessible hydrogen refuelling points and 500 hydrogen fuel cell vehicles by 2020.

Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).

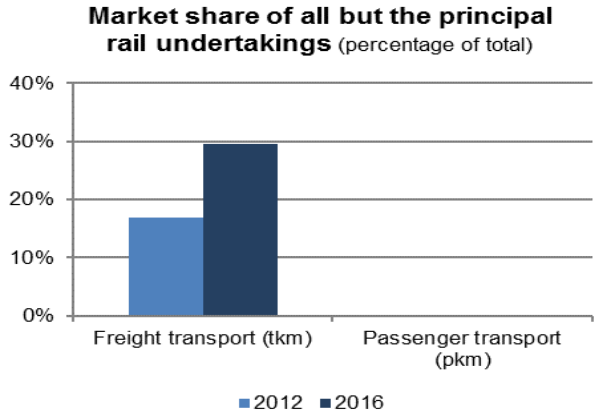



## Market opening in the railway sector

The market share of the incumbent operator – *RENFE* – has dropped to slightly above 70% in 2016 in the freight market, while it remained at 100% in the passenger market.

The opening of the passenger rail market has now been postponed until 2020.

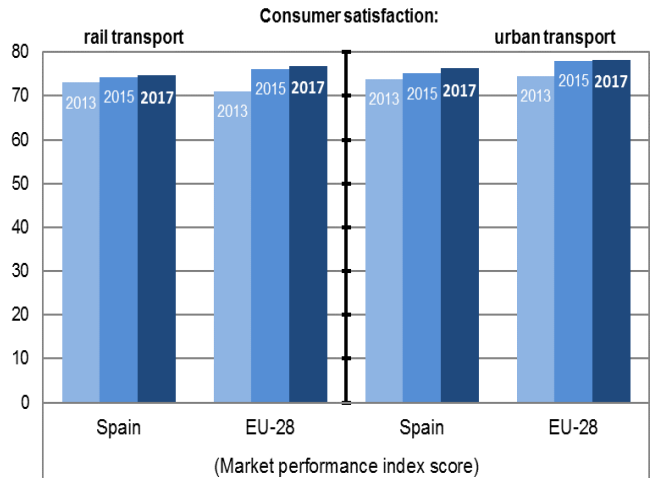
On the freight market, new operators are emerging very slowly, mainly because the amount of rolling stock for lease is very limited.




Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

Consumer satisfaction with public transport has improved since 2013 and is only slightly below the EU average.

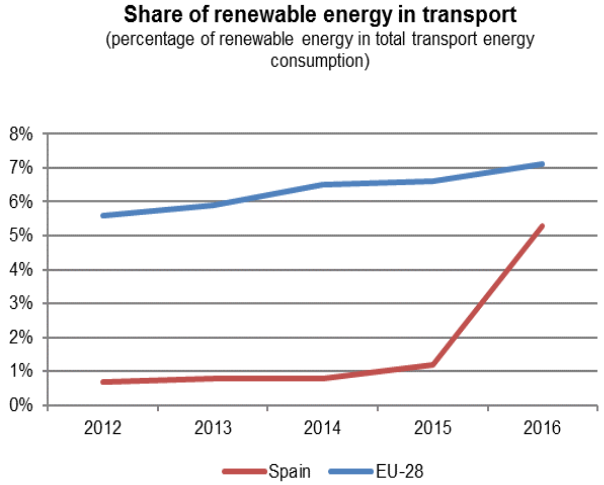



Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

The share of renewable energy in transport has been very low (less than 2%) until 2015 but made a sudden major increase to above 5% in 2016.

The Spanish Government has started to apply biofuels sustainability criteria in 2016, which make it possible to count biofuels towards the renewable energy targets.




Source: Eurostat.

## Completion of TEN-T Core Network in Spain

Most of the transport investment needs om Spain are in rail. Notably completing cross-border connections with France and Portugal, better connections of ports to the rail network, upgrade of the Iberian gauge to UIC gauge, and lengthening of sidings allowing effective operations with long freight trains. Spain could also improve the return to the high-speed rail network by completing the interconnection with its key airport hubs (notably Barajas) to shift internal mobility from air to high-speed rail.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 100% | 96% | 41% | 100% |

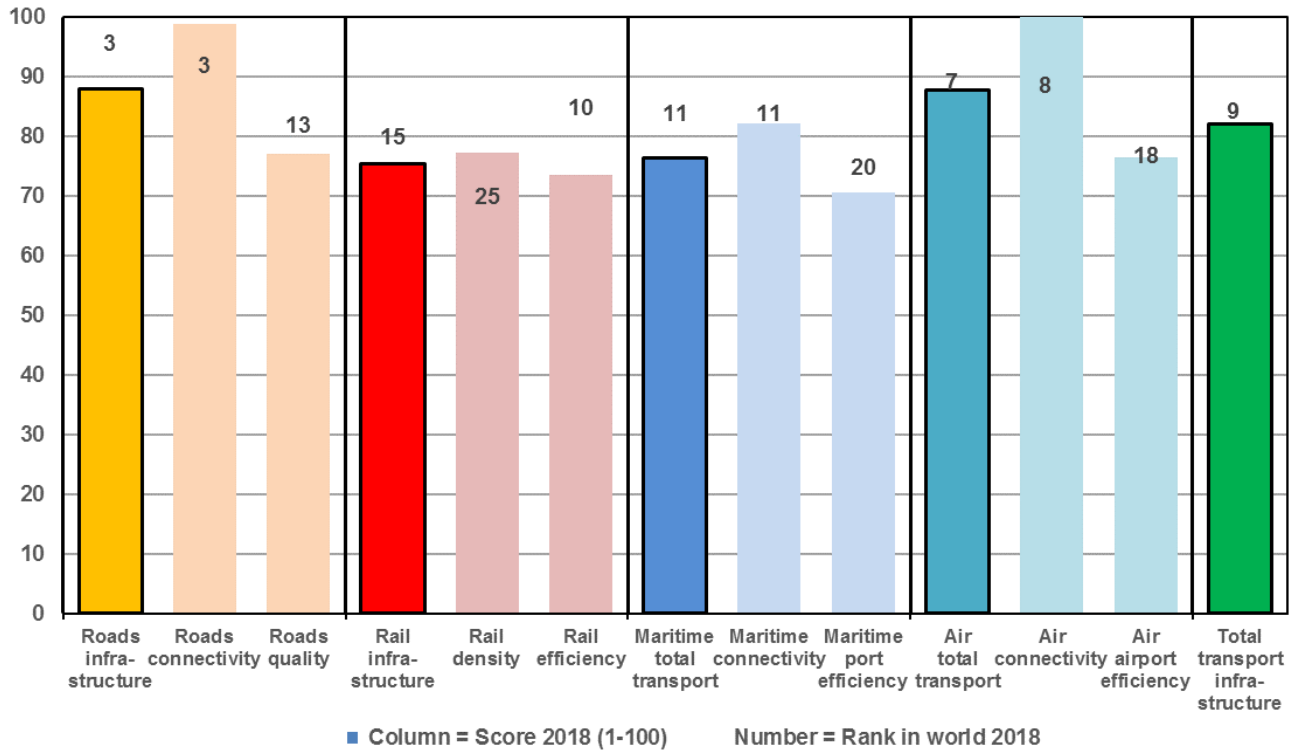
Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Spain

Spain has managed to maintain its high score for the perceived quality of its infrastructure in 2018.

In particular the road infrastructure is very competitive at world scale.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# France

## Main current issues in France

### Issue 1 – Law on minimum wage in the road transport sector

Because of the decline of the road haulage sector in France, largely caused by competition from central and eastern European countries, France has taken a rather protectionist stance in relation to road haulage in the last few years. Notably, it has adopted a law concerning an application of the French minimum wage to the transport sector, which entered into force in July 2016. The application of this measure to the transport sector must ensure the balance between the social protection of workers and the basic principle of freedom to provide cross-border services. Applying the minimum wage in a systematic way to all international transport operations, irrespective of the time spent by a driver in a Member State, could restrict the freedom to provide services and the free movement of goods. Therefore, the Commission decided on 16 June 2016 to address a letter of Formal Notice to France. The case is currently pending, since negotiations in Council have started on the Commission proposal for a *lex specialis* on the application of posting of workers rules to the road transport sector.

### Issue 2 – Rail reform

The French rail passenger market is still closed to competition. However, major changes to the French rail system are on their way. In an accelerated legislative procedure, the "Law for a New Railway Pact" was approved by the National Assembly on 13 June 2018 and by the Senate on 14 June, each time by a large majority. French President Emmanuel Macron signed the reform into law on 27 June 2018. It entered into force on 28 June when it was published in the French official gazette. At the heart of the law is the transformation of France's national railway company, *Société nationale des chemins de fer français* (SNCF), into a public limited company wholly owned by the French Government. The new SNCF will become an integrated group made up of wholly owned subsidiaries. These will include the infrastructure and passenger transport divisions, as well as the freight division, Fret SNCF.

To facilitate the transformation, the French Government will also take on part of SNCF's EUR 55 billion of debt – a total of EUR 35 billion in several stages by 2020. SNCF's legal monopoly on rail passenger transport is expected to end in 2019. France is thus following the European requirements set out in the 4$^{th}$ Railway Package and making rail transport even more attractive, also thanks to greater competition. However, long transitional periods are planned for market liberalisation in important regional transport networks, especially in the Greater Paris area. Details on how this law will have to be implemented will be determined in ordonnances to be issued in the coming months.

The rail freight sector has profitability issues and the extensive network of low-traffic freight lines poses a challenge in terms of maintenance financing.

## Key facts and figures on transport in France

### Modal split

Car trips represented 80% of the passenger-kilometres travelled in France in 2016. This remains slightly below the EU average of 81.3%. On the other hand, France records a lower use of buses and coaches than the EU average, while rail passenger transport is higher.

For land freight transport, road transport covers the largest share of freight transport activity, about 83% of all tonne-kilometres driven. In addition France has a much lower share of rail and inland waterway transport than the EU average: combined, they represent only 13.2% of land freight transport in 2016, compared to 22.5% at EU level.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| France | 80.0% | 8.7% | 9.5% | 1.8% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| France | 83.2% | 10.5% | 2.7% | 3.7% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

The logistics sector in France only ranks 16th in the World Bank's 2016 ranking of the LPI. The main weaknesses are in international shipments, customs and logistics competence (all ranked below 4 out of 5 on the performance scale).

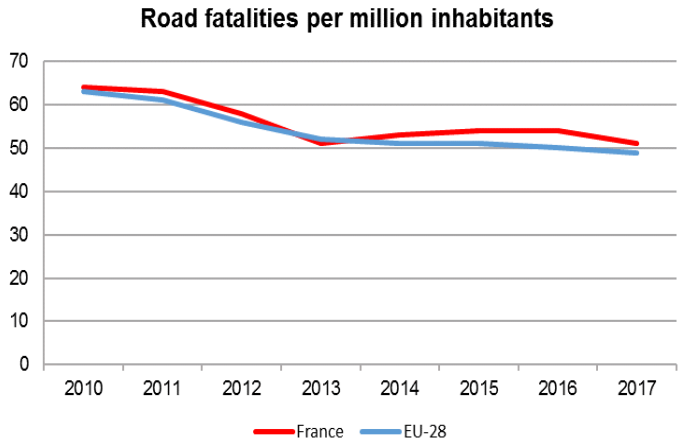
World Bank Logistics performance indicator

| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 13 | 16 | 16 |
| Score | 3.85 | 3.9 | 3.84 |
| Customs | 18 | 17 | 19 |
| Score | 3.65 | 3.71 | 3.59 |
| Infrastructure | 13 | 15 | 12 |
| Score | 3.98 | 4.01 | 4 |
| International shipments | 7 | 20 | 17 |
| Score | 3.68 | 3.64 | 3.55 |
| Logistics competence | 15 | 19 | 17 |
| Score | 3.75 | 3.82 | 3.84 |
| Tracking & tracing | 12 | 15 | 12 |
| Score | 3.89 | 4.02 | 4 |
| Timeliness | 13 | 13 | 14 |
| Score | 4.17 | 4.25 | 4.15 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

While the stock of registered vehicles in France has slightly increased, the road fatalities have decreased between 2010 and 2017 by 14% (EU average: 20%), although this trend has slowed down in both France and the EU overall since 2013. In 2017, there were 51 road fatalities per million inhabitants in France, compared to 64 in 2010.



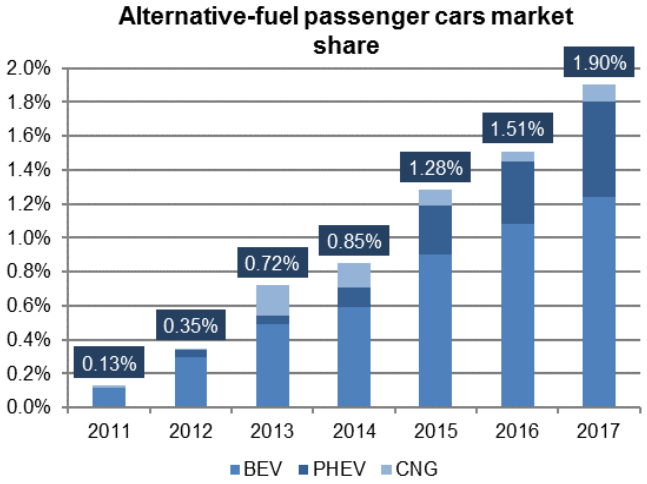

Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The number of alternative-fuelled cars is increasing.

The number of electric charging points in France has increased significantly over the period from 2013 to 2016. The largest increases were observed between 2014 and 2016, when the number of charging points went from 1 834 to 15 843 units. According to the European Alternative Fuels Observatory, in 2018, there were 9 public charging points per PEV in France (EU average: 8).

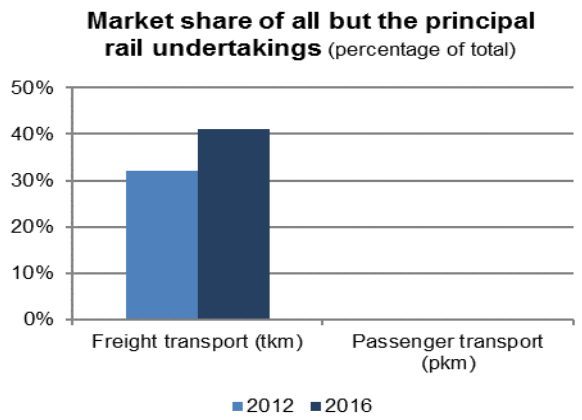
Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).




## Market opening in the railway sector

The French domestic rail passenger market remains closed. The legal monopoly of State-owned incumbent *SNCF* must disappear in 2019 (when the 4th Railway Package takes effect).

There is an on-going reflection on a change in the management of passenger stations, which is currently entrusted to the incumbent *SNCF* and has been identified as an obstacle to market opening by the regulatory body.

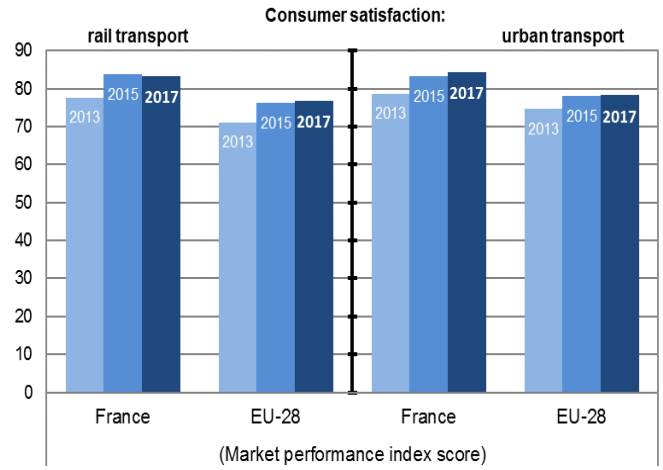



Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

Consumer satisfaction with public transport in France has increased from 2013 to 2017. Both for rail and urban transport, it is significantly higher than the EU average.

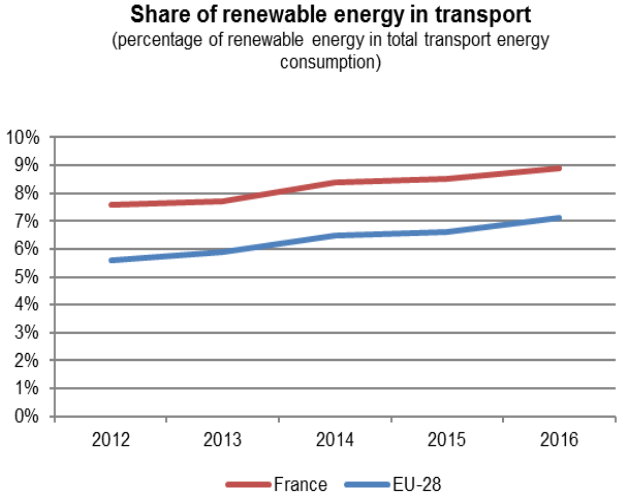
However, a dedicated Eurobarometer Survey in 2018 (Flash Eurobarometer 463) has shown that train passengers in France are more dissatisfied with the punctuality of trains in 2018 than in 2013. The level of satisfaction with this specific aspect is also considerably below EU average.




Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

In France, the transport sector is the leading source of $CO_2$ emissions, with road transport being the main contributor. Technological advances, combined with increasingly stringent regulations, have resulted in more energy-efficient, less polluting vehicles. France ranks 4th in the EU in terms of share of renewable energy in the energy consumption of the transport sector.




Source: Eurostat.

## Completion of TEN-T Core Network in France

France's part in the TEN-T Core Network is almost complete for road and conventional rail. For high speed rail, less than 50% are completed.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 98% | 99% | 47% | 75% |

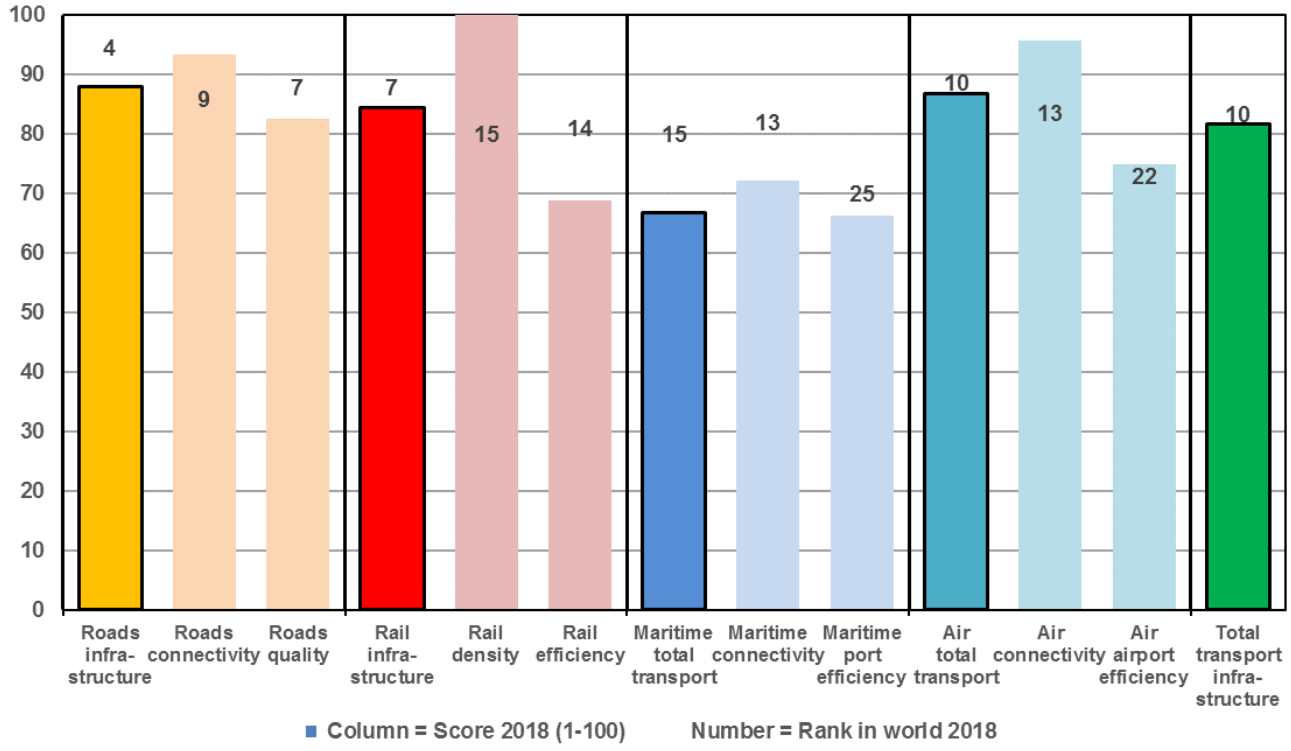
Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in France

According to the 2018 edition of the Work Economic Forum's Global Competitiveness Reports, the perceived quality of the transport infrastructure is relatively high in France (82/100, rank 10th).

Only the maritime infrastructure appears to perform less well than the other modes considered in the Global Competitiveness Report.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Croatia

## Main current issues in Croatia

### Issue 1 - Competitiveness of the rail sector

The status of railway infrastructure lags significantly behind the EU average. Completion of the TEN-T Core Rail Network in Croatia stands at 5-6%, compared to the EU average of 60%. The outdated and limited rail infrastructure results in low competitiveness, low quality of service and a general preference for other transport modes, in particular road, where the quality of infrastructure is significantly higher. However, costs and the negative environmental impacts are also higher for road infrastructure.

Despite recent improvements, restrictive regulations and policies still dominate the railway market in Croatia. In order to improve competitiveness and quality of services and to further develop rail infrastructure, potential measures could include removing regulatory restrictions, implementing open and transparent tendering procedures, and facilitating the cooperation between state-owned enterprises, private operators, and infrastructure managers.

Productivity appears to be particularly weak in Croatian state-owned enterprises, including the three which are market-dominant in the rail sector. This may negatively affect the overall productivity of the industries in which they operate.

Good hinterland transport by rail would positively affect ports by improving their cargo handling capacities and connections to EU markets. A competitive railway market with modern infrastructure creates jobs and can generate growth for the Croatian economy overall.

The 2019 European Semester country report, in its executive summary highlights that improving transport connections, in particular in urban areas, would boost productivity and growth potential.

### Issue 2 – Renewable energy in transport

Croatia is lagging behind with the uptake of renewable energy in the transport sector. The reduction of $CO_2$ emissions from transport is at risk. Among other measures, a modal shift to rail could contribute to achieving $CO_2$ emission targets. As to electric road mobility, not only the share of battery-powered cars is extremely low, but in 2018 there were only 2 public charging point per plug-in electric vehicle (EU average: 8).[90]

### Issue 3 - Road safety

Despite a substantial decrease of the fatality rate since 2008, Croatia is one of the countries with the highest fatality rates among the EU Member States. Croatia reduced its number of road deaths by a comparably low 34% between 2001 and 2010 (EU average: 43%). Croatia further reduced road deaths by 22 % between 2010 and 2017 (EU average: 20%). In 2017, Croatia was still among the three worst performing EU countries in terms of road safety (80 deaths per million inhabitants versus 49 in EU).

[90] European Alternative Fuels Observatory, 2018.

## Key facts and figures on transport in Croatia

### Modal split

As regards passenger transport, the modal split in Croatia for 2016 is above the EU average for road transport, but below the EU average for railways.

For freight transport, the modal split in Croatia in 2016 was in line with the EU average as regards railways and inland waterways. Contrary to passenger transport, road transport plays a less important role in the Croatian freight sector than on average in the EU.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Croatia | 83.3% | 12.1% | 2.6% | 1.9% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Croatia | 65.6% | 16.2% | 6.3% | 11.9% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

The performance of the logistics sector in Croatia, as measured by the World Bank, has improved since 2014, but is still relatively weak compared to other EU countries.

World Bank Logistics performance indicator

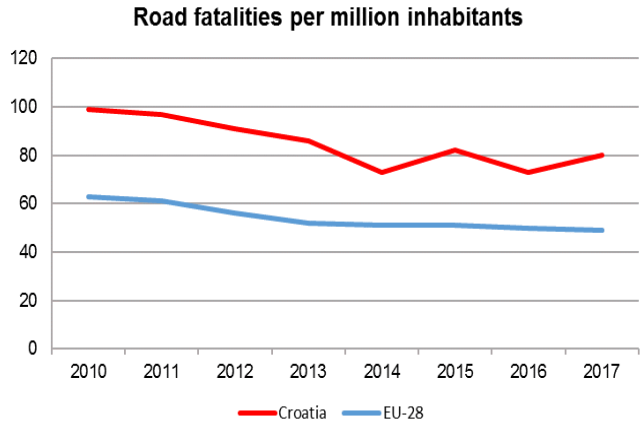
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 55 | 51 | 49 |
| Score | 3.05 | 3.16 | 3.1 |
| Customs | 50 | 47 | 39 |
| Score | 2.95 | 3.07 | 2.98 |
| Infrastructure | 55 | 53 | 46 |
| Score | 2.92 | 2.99 | 3.01 |
| International shipments | 61 | 51 | 58 |
| Score | 2.98 | 3.12 | 2.93 |
| Logistics competence | 56 | 42 | 45 |
| Score | 3 | 3.21 | 3.1 |
| Tracking & tracing | 59 | 52 | 61 |
| Score | 3.11 | 3.16 | 3.01 |
| Timeliness | 62 | 67 | 47 |
| Score | 3.37 | 3.39 | 3.59 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

As regards road safety, Croatia lags significantly behind the EU average, placing it among the least safe Member States as regards fatalities in road transport. In 2010, there were 99 road fatalities per million inhabitants in Croatia, compared to the EU average of 63 for the same year.

Croatia has followed the general EU trend of decreasing road fatalities in the period between 2010 and 2017. The number of fatalities per million inhabitants in 2017 was 80 which is still significantly above the EU average of 49 for the same year.



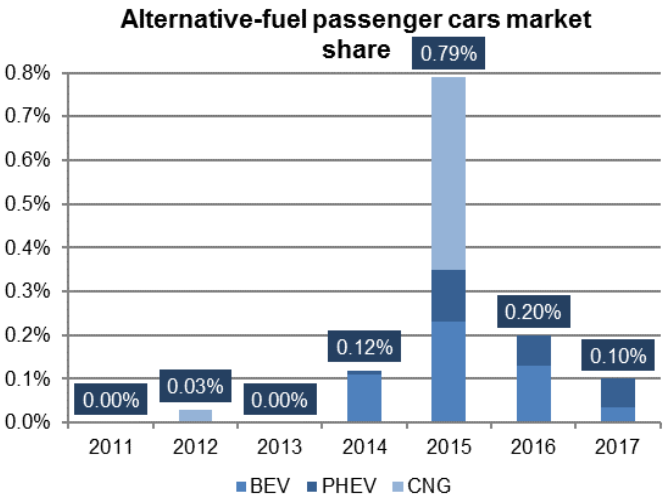

Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The uptake of alternative fuels in road transport is very low.

Croatia has communicated limited information to the Commission on future scenarios for most alternative fuels in the transport sector. For all fuels and some modes, Croatia establishes targets. Yet, there is a lack of concrete measures to encourage and facilitate the deployment of recharging points. According to the European Alternative Fuels Observatory, in 2018 there were only 2 public charging point per plug-in electric vehicle (EU average: 8).

Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).



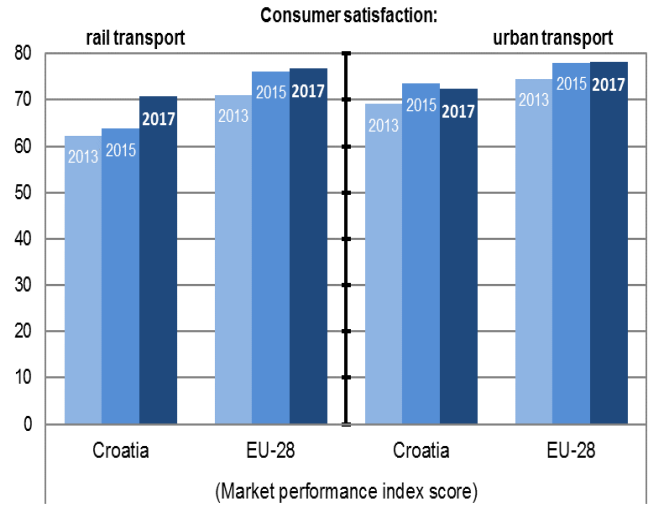

## Market opening in the railway sector

Despite recent improvements, restrictive regulations and policies still dominate the rail sector. The dominant market position of the existing three state-owned rail companies (*HŽ Infrastruktura, HŽ Putnički prijevoz, HŽ Cargo*) prevents the development of private rail enterprises in Croatia. For example, *HŽ Cargo* accounted for around 91% of freight transport in the first three quarters of 2016, while in passenger rail transport the incumbent continues to control 100% of the market. In this latter segment, Croatia does not make use of competitive tendering, but only of direct award to the state-owned incumbent passenger operator. The infrastructure manager *HŽ Infrastruktura* does not have an asset register which forms the basis of efficient asset management strategies. On the positive side, Croatian ports have lifted a major barrier by publishing complete lists of access conditions and prices of rail-related services.

## Consumer satisfaction with public transport

The consumer satisfaction with public transport in Croatia is lower than on average in the EU, although it has improved from 2013 to 2017.

Mainly rail transport does not score high in consumers' appreciation. A dedicated Eurobarometer Survey in 2018 (Eurobarometer 463) showed that passenger satisfaction with train services in Croatia is below EU average in almost all areas: complaint handling, availability of seats, punctuality, frequency, availability of Wi-Fi, cleanliness, accessibility for passengers with reduced mobility.

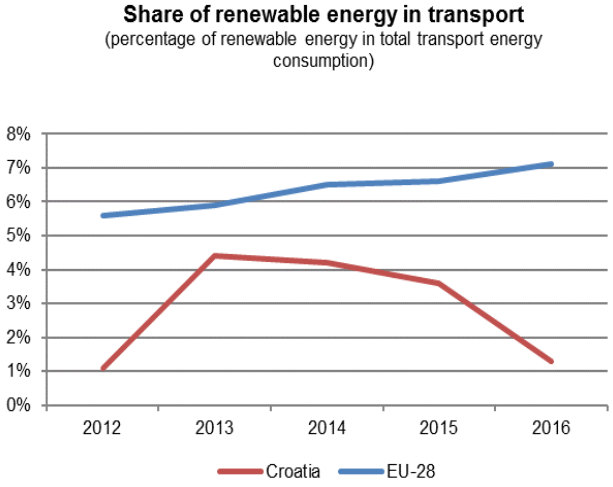



Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

Croatia has overall exceeded its 2020 target of 20% renewable energy, with a renewable energy share of 28.2% in 2016. However, Croatia is significantly lagging behind the 2020 target of 10% of renewable energy sources in transport. Since 2013, the share of renewable energy sources in transport is decreasing in Croatia.

The high share of passenger cars and the low uptake of alternative fuels in road transport might contribute to this development. Electrification of the railway is poor in Croatia.




Source: Eurostat.

## Completion of TEN-T Core Network in Croatia

In Croatia a lot still remains to be done in view of completing the TEN-T Core Network, especially on the railway network.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 60% | 5% | not applicable | 33% |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Croatia

The overall quality of transport infrastructure in 2018 can be considered satisfactory on average. In particular, the intensive investments in road infrastructure have resulted in a dense road network of high quality.

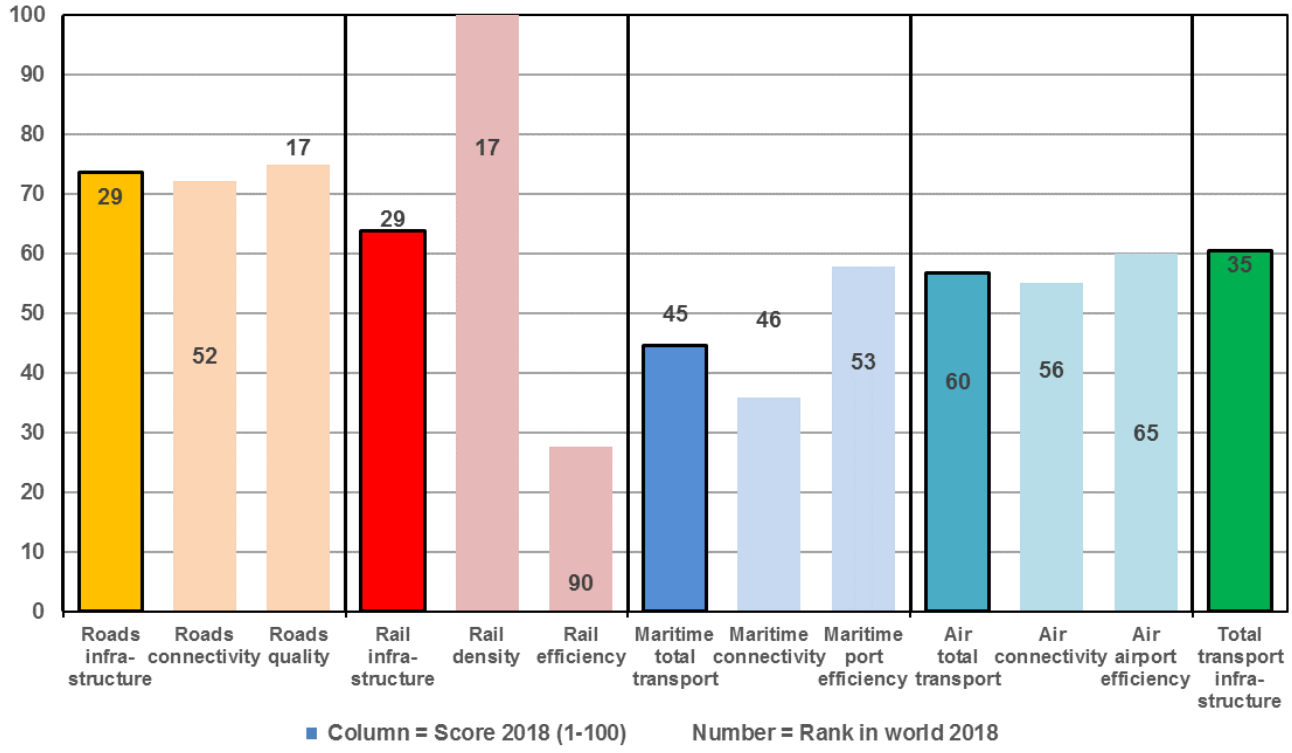
The quality of port infrastructure is satisfactory, although further investments to increase capacity and quality of service would be welcome both for inland and seaports.

Investments in airport infrastructure have increased over the recent years. In particular, a new main terminal has been constructed at Zagreb Airport, while a multi-phased investment is ongoing at Dubrovnik Airport with the goal to increase capacity and improve quality.

The efficiency of Croatia's railway infrastructure is significantly lagging behind. This is due to the lack of infrastructure investments and maintenance over a longer period of time.

The lack of quality of rail infrastructure has resulted in the reduction of average speeds on the network (for freight and passenger transport), contributing to long journeys, low quality of service and a shift to other transport modes, in particular road.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Italy

## Main current issues in Italy

### Issue 1 - Quality and development of transport infrastructure

In 2018, according to the World Economic Forum, Italy performs below EU average in all the main infrastructure quality indicators, except for the railway infrastructure. The poor performance has negative effects on Italy's economic activities. People in Italy spent almost 38 hours in traffic congestion in 2017.[91] As a result, the level of satisfaction of economic operators and the general public with national infrastructures is low.

The Italian section of the Scandinavian-Mediterranean TEN-T Corridor is still incomplete. This concerns not only the rail network, but also intermodal links with TEN-T ports, which hamper the development of logistics, and rail connections between TEN-T core airports and urban centres. In order to develop a sustainable, climate resilient, intelligent, secure and intermodal TEN-T, investments should focus on:

- completion of the rail TEN-T network (Napoli-Bari, Catania-Palermo, Battipaglia-Reggio Calabria), also aligning national sections of the network to EU standards and requirements (including safety, security, ERTMS, interoperability. accessibility for users with reduced mobility);
- multimodality investments, consisting in i) rail-sea connections to TEN-T core ports for freight transport and ii) rail/public transport links to TEN-T airports for passengers.

As for railways of regional importance, connecting inner areas with urban centres and TEN-T nodes, there is a persistent infrastructure gap between the more and the less-developed regions, in terms of electrification, single vs. double tracks, traffic management systems and intermodality stations.

### Issue 2 – Cleaner urban transport

The efficiency and quality of local public transport lags behind in less-developed regions and in some urban centres in Centre-North Italy. Italian cities and urban agglomerations should implement measures for sustainable multimodal urban mobility. Investment needs should focus particularly on reducing dependency on private cars and enabling shift towards cleaner collective public transport and active modes of mobility (multimodal platforms), including take up of innovative solutions, such as electro-mobility.

### Issue 3 – Competition in transport services

Increased use of competitive tendering of public service contracts is key to improve the quality and cost-effectiveness of services. In the railway sector, only 5 regions have organised competitive tenders to date, and three were unsuccessful due to legal action. Many regions have already directly awarded rail contracts to *Trenitalia* which bind them over 15 years due to the company's investments in new rolling stock. The repeatedly announced privatisation of the railway incumbent company (*Ferrovie dello Stato*) has not materialised so far. In 2017, the Italian Competition Authority found that the requirement to hold a national railway licence to operate domestic rail passenger services hampered competitive entry.

[91] Source: EU Transport Scoreboard.

## Key facts and figures on transport in Italy

### Modal split

Although Italy records a high use of passenger cars and in 2016 (car trips represented more than 80% of the passenger-kilometres travelled) this aligns with the EU average. The use of buses and coaches is above the EU average in Italy, however use of rail, tram and metro remains below this average.

For freight, road haulage accounts for a very high proportion of tonne-kilometres transported. Inland waterways do not play a role in freight transport in Italy.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Italy | 81.3% | 11.9% | 6.0% | 0.8% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Italy | 80.1% | 13.8% | 0.0% | 6.1% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the World Bank, the logistics sector in Italy ranks 19th in the world, which marks an overall improvement compared to the previous two editions of the LPI.

However, the sector suffers from fragmentation and lack of digitalisation. Multi-modal integration to promote accessibility and logistics connectivity could also help to improve the sector's performance.

World Bank Logistics performance indicator

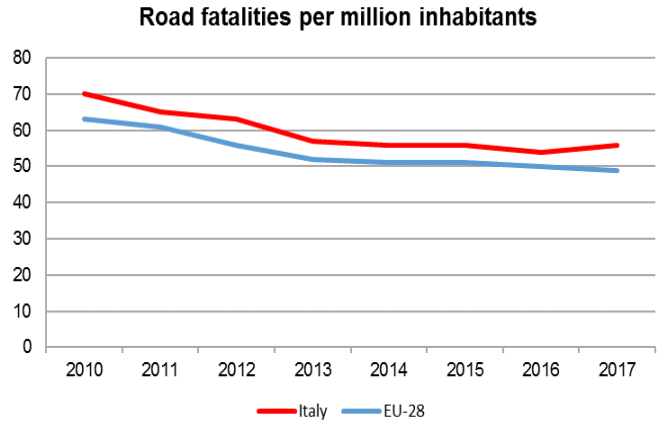
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 20 | 21 | 19 |
| Score | 3.69 | 3.76 | 3.74 |
| Customs | 29 | 27 | 23 |
| Score | 3.36 | 3.45 | 3.47 |
| Infrastructure | 19 | 19 | 18 |
| Score | 3.78 | 3.79 | 3.85 |
| International shipments | 17 | 17 | 21 |
| Score | 3.54 | 3.65 | 3.51 |
| Logistics competence | 23 | 21 | 24 |
| Score | 3.62 | 3.77 | 3.66 |
| Tracking & tracing | 14 | 20 | 18 |
| Score | 3.84 | 3.86 | 3.85 |
| Timeliness | 22 | 22 | 17 |
| Score | 4.05 | 4.03 | 4.13 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Italy has an average position with respect to the annual amount of fatalities per million inhabitants. In 2017, Italy reported 56 dead per million inhabitants, the second lowest figure ever (EU average: 49).

The share of fatalities among motorcyclists is, however, alarmingly high: Italy represents 12% of the EU population, 25% of the PTW stock and 20% of all motorcycle fatalities. Furthermore, only around 68% of motorcyclists and mopedists wear a helmet.



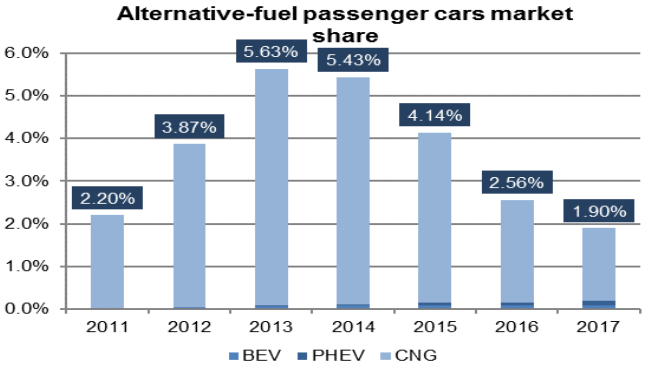

Source: DG MOVE - CARE data.

## Alternative fuels in road transport

After some years of positive development, the market share of new alternative-fuelled passenger cars has decreased again considerably.

For 2020, Italy estimates low shares of new sales (1%-3%) of electric vehicles and of electric vehicles on the road (0.1%-0.3%).

CNG has the largest share of alternative fuels in new passenger cars. Italy has a dense network of public refuelling points, especially in the northern regions. Nevertheless, on a country level, Italy currently does not, nor will it in the near future, meet the level of at least one CNG refuelling point per 600 CNG vehicles on the road.

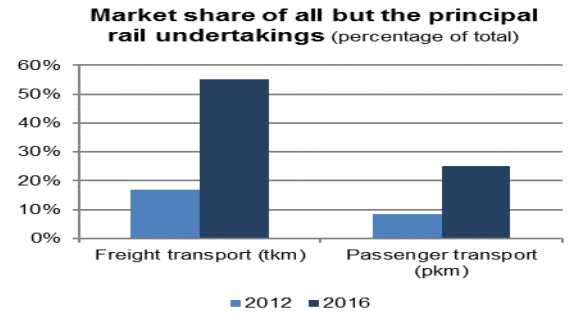



Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).

## Market opening in the railway sector

At the legislative level, the rail market is already open to competition in Italy. However, competition is still limited, with the notable exception of the high speed rail segment.

The entrenched position of the railway incumbent makes market entry difficult. The Italian national railway company *Ferrovie dello Stato SpA* is organised as a holding that controls both the infrastructure manager (*RFI*) and the incumbent operator (*Trenitalia*) which has a very high market share in both passenger and freight transport. Italian law allows regions to freely tender their public service contracts, but very few have done so. Moreover, some legal restrictions to competition remain, such as licence requirements.

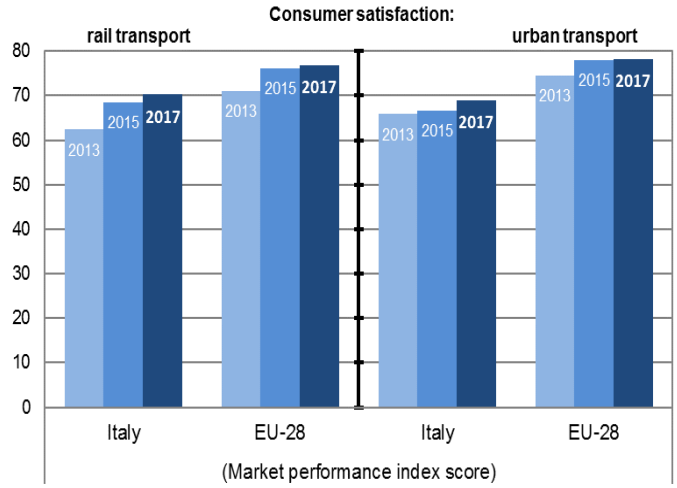



Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

Consumer satisfaction with rail and urban transport is substantially lower in Italy than on average in the EU. According to a special Eurobarometer Survey in 2018 (Flash Eurobarometer 463), consumers' satisfaction with rail services is particularly low in the areas of complaint handling, punctuality and accessibility for passengers with reduced mobility.

However, for both rail and urban transport, the situation seems to be improving since 2013.

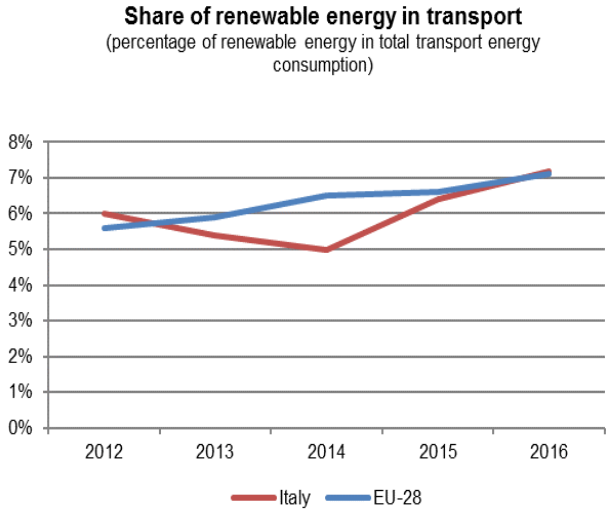



Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

Italy has caught up with the EU average on the use of renewable energy consumption in transport. The share of renewables in Italy's transport energy consumption displays an increasing trend since 2014.

It should be noted though that past changes in support schemes for renewables (e.g. retroactive cuts in feed-in tariffs for existing projects), the uncertainty about the post-2016 regulatory framework for renewables, and persistent burdensome administrative procedures, have limited market growth during the last couple of years.




Source: Eurostat.

## Completion of TEN-T Core Network in Italy

The completion of the TEN-T Core Network in Italy is making good progress. More needs to be done to close gaps, mainly on the high speed rail connections and inland waterways.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 81% | 70% | 41% | 66% |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

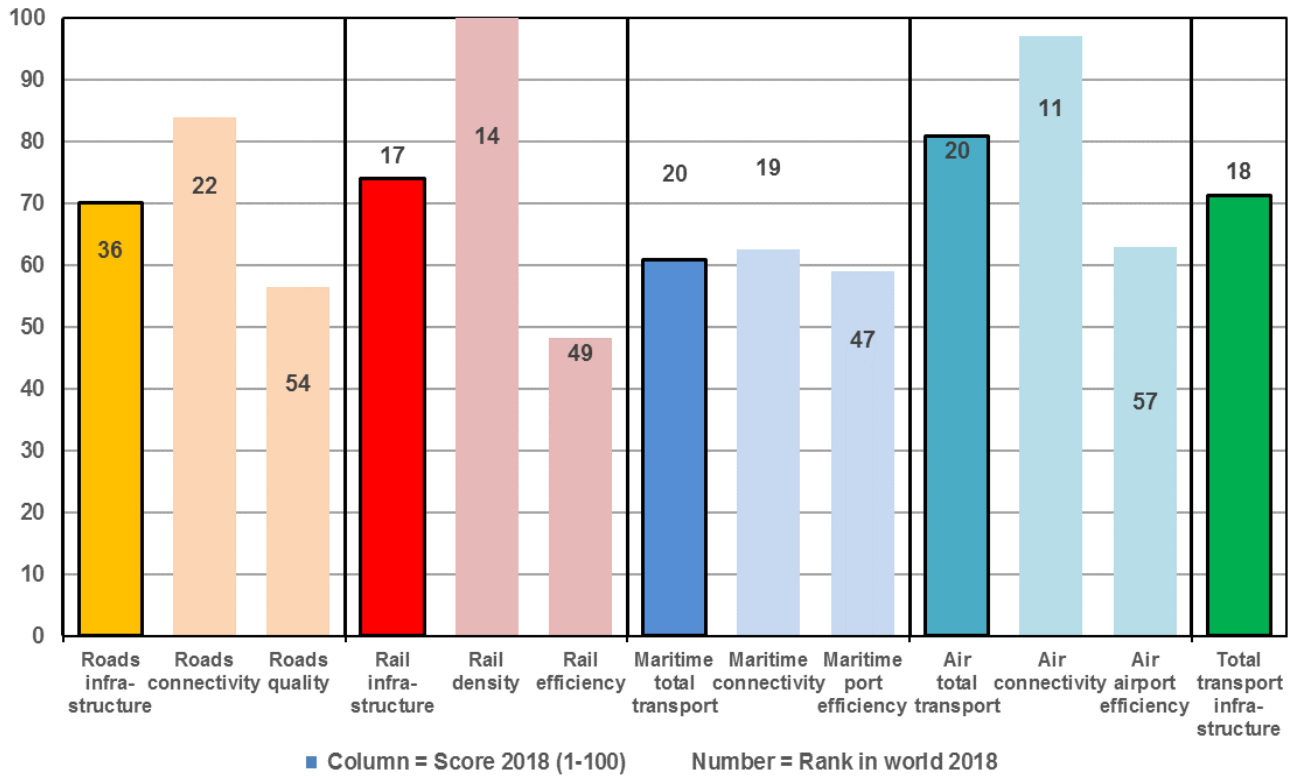
## Quality of the transport infrastructure in Italy

People in Italy spent almost 38 hours in traffic congestions in 2017, well above the EU average of 30.4 hours. As a result, population and economic operators satisfaction with the national road infrastructure is extremely low.

A weak competition framework and underinvestment affect railways and ports. In railways, most of the public service contracts between the incumbent operator (Trenitalia) and the regions expired at the end of 2014. However, the lack of a structured framework for competitive tenders still prevents a real improvement in competition in the sector.

For ports, the lack of intermodal connections with the hinterland remains one of the major causes of inefficiency. The situation is particularly difficult in the southern regions where only 8% of ship berths are connected to the inland railway network versus 48% in the north.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Cyprus

## Main current issues in Cyprus

### Issue 1 – Reliance on road transport produces negative externalities

The reliance on roads for inland transport fuels a number of policy challenges, e.g. the struggle to reduce air pollution and greenhouse gas emissions, the dependency on imported oil products and the sensitivity of the economy to changes in oil prices. It also leads to severe congestion in urban areas during peak hours and on roads to and from ports.

### Issue 2 – Conflict with Turkey impacts on merchant ship fleet

The restrictive measures imposed by the Turkish Government on ships flying the Cypriot flag have been acknowledged as being contrary to the provisions of the Customs Union Agreement between the EU and Turkey and the Protocol thereto, which extends the Agreement to the States which became members of the EU in 2004. The embargo also extends to vessels (flag of any nationality) sailing to Turkish ports directly from Cypriot ports under the effective control of the Republic of Cyprus (Limassol, Larnaka), or vessels of any nationality related to the Republic of Cyprus in terms of ownership or ship management.

They are an obstacle for Cypriot and of EU-interest merchant ships willing to engage in freight transport for trade with the neighbouring country and in the wider region.

### Issue 3 – Air traffic management

Cyprus had issues with the implementation of the new air traffic management system *LEFCO*. The contract to buy and install *LEFCO* was signed in 2003 and the system was initially earmarked for a September 2005 delivery. However, its delivery had been delayed over technical and compatibility issues. The Government is looking to acquire a new air traffic management system after terminating the contract for the purchase and installation of *LEFCO*. In the meantime, *Civil Aviation* is upgrading its current primary traffic control system and has installed a new backup system. The current infrastructure will support the smooth running of air traffic control for the next four to five years. In February 2013, after a new tendering round, the Government selected the *Thales group* to modernise the air traffic management system in Cyprus in cooperation with *Cyta*, the Cyprus Telecommunication Authority.

### Issue 4 – Uptake of renewable energy and alternative fuels in transport

Cyprus has a very low share of renewables in transport. Moreover, the uptake of alternative fuels in the overly represented road transport mode is extremely low. The Cypriot Government's ambitions to increase the share of electric vehicles in the country's car fleet appear to be modest. The ongoing reforms are set to increase energy efficiency by diversifying the energy mix, opening up the market and improving regulation, but implementation has been slow.

## Key facts and figures on transport in Cyprus

### Modal split

Cyprus has no railways and no inland waterways. All inland transport activities are by road.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Cyprus | 81.4% | 18.6% | 0.0% | 0.0% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Cyprus | 100.0% | 0.0% | 0.0% | 0.0% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

The World Bank Logistics performance indicator for Cyprus has considerably improved overall in 2018 compared to the two previous editions. In international comparison, the Cypriot sector's performance is average, although some partial indicators, such as international shipments and logistics competence have improved a lot in the international ranking.

World Bank Logistics performance indicator

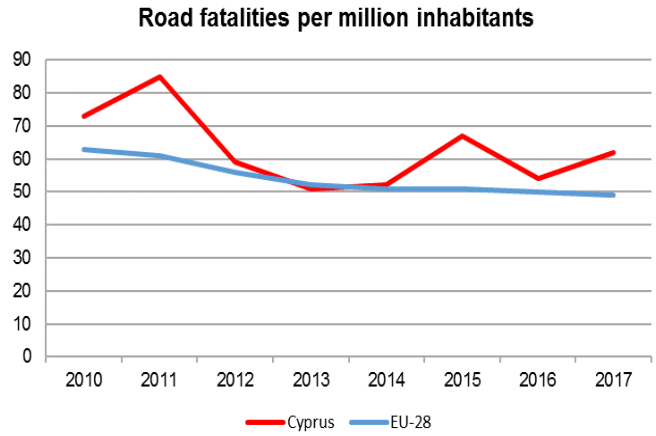
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| **LPI Rank** | **58** | **59** | **45** |
| Score | 3 | 3 | 3.15 |
| **Customs** | **53** | **44** | **37** |
| Score | 2.88 | 3.11 | 3.05 |
| **Infrastructure** | **59** | **52** | **55** |
| Score | 2.87 | 3 | 2.89 |
| **International shipments** | **60** | **78** | **50** |
| Score | 3.01 | 2.8 | 3.15 |
| **Logistics competence** | **63** | **76** | **53** |
| Score | 2.92 | 2.72 | 3 |
| **Tracking & tracing** | **65** | **98** | **48** |
| Score | 3 | 2.54 | 3.15 |
| **Timeliness** | **65** | **38** | **45** |
| Score | 3.31 | 3.79 | 3.62 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Road fatalities in Cyprus are above the EU average. Yet, the trend in road safety is generally positive. The number of road deaths decreased by 39% between 2001 and 2010 (the EU average decrease was 43%), and Cyprus further reduced the number of road deaths by 12% between 2010 and 2017 (20% reduction at EU level).

It should be noted that small countries like Cyprus tend to have bigger fluctuations from one year to the next and that the long-term trend is the most important indicator in these cases.

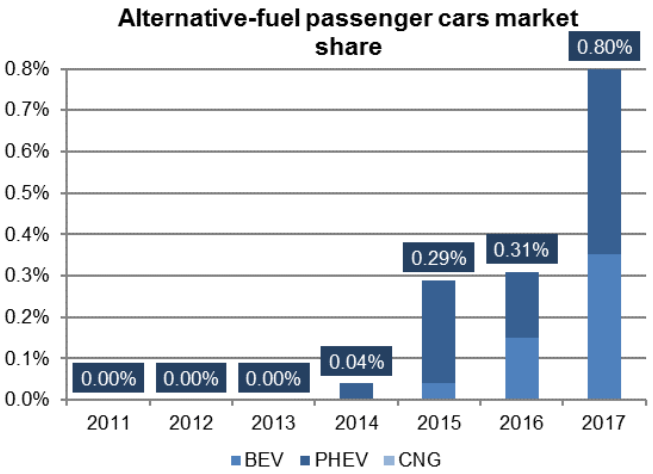



Source: DG MOVE - CARE data.

## Alternative fuels in road transport

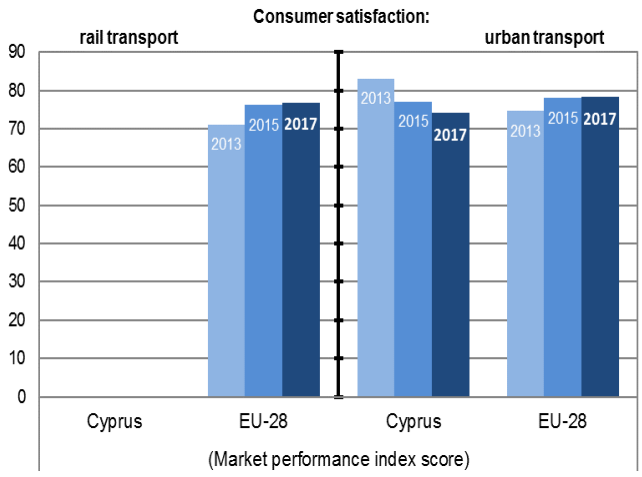
Alternative fuels in new passenger cars were almost non-existent in Cyprus until 2015. Current policies aim at increasing the share of electric vehicles, which seems to bear first fruit in 2017. Yet the results so far are very modest.

Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).




## Consumer satisfaction with public transport

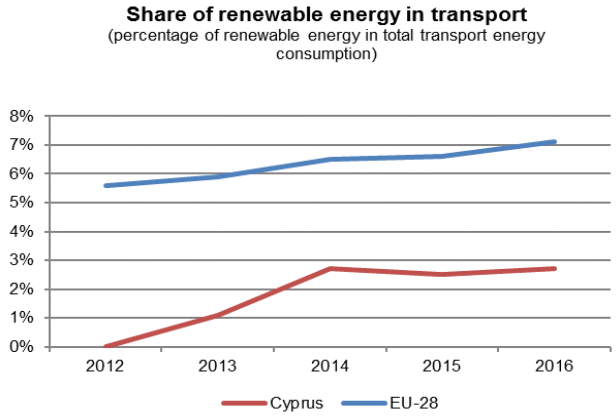
Given the absence of railway in Cyprus, it can only be said that consumer satisfaction with urban transport has dropped substantially from an above-average level in 2013 to below EU average in 2017.




Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

With a 2.7% share in 2016, Cyprus is lagging behind in the use of renewable energy sources in transport and may have difficulties reaching the binding 10% target by 2020. Currently there is no support scheme or public incentive for the promotion of renewable energy in the transport sector in Cyprus.




Source: Eurostat.

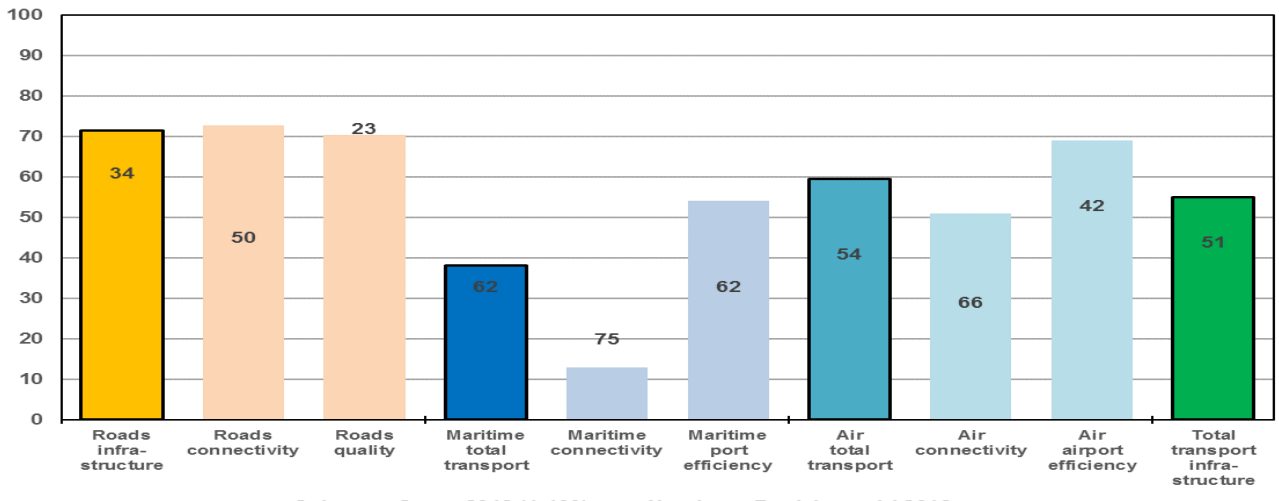
## Quality of the transport infrastructure in Cyprus

Since Cyprus has neither railways nor navigable inland waterways, all domestic transport is road transport. The reliance on cars leads to severe congestion in urban areas during peak hours (morning and evening rush) and on roads to and from ports. Despite a declining trend, the value for road quality in Cyprus corresponds broadly to the EU average.

Limassol and Larnaka ports, which are the country's major gateways to international shipping, are owned and regulated by the (public) Cyprus Ports Authority. The privatisation process for the operational tasks, which started in the framework of the economic adjustment programme for the country after the financial crisis, has recently been completed for the Limassol port and for Larnaka the process is ongoing.

This might have contributed to the level of quality of the port infrastructure in 2018 (5th lowest in the EU). The quality of air transport infrastructure is below the EU average in 2018 (59 versus 66). A major factor in recent years has been the difficult financial situation of the carrier Cyprus Airways and its bankruptcy in 2015.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Latvia

## Main current issues in Latvia

### Issue 1 – Quality of road infrastructure

In Latvia, the poor (and deteriorating) quality of road infrastructure is an important obstacle to safe and efficient transport. It also leads to congestion in the vicinity of Riga.

### Issue 2 – Road safety

Latvia has made big improvements in its road safety performance, but its fatality rate still remains considerably above the EU average (70 deaths per million inhabitants in 2017, against the EU average of 49).

### Issue 3 – Rail connections with the rest of the EU countries

The development of railway traffic between the Baltic States and the rest of the EU countries, as well as the efficient functioning of the railway market in Latvia, is affected by a missing high quality North-South rail link, the difference in the track gauges (respectively 1 520 and 1 435 mm) and different signalling systems. The Rail Baltica project could help remedy these issues. There is potential for improvement or creation of intermodal terminals and suitably located, efficient transhipment terminals between the broad-gauge network and standard-gauge Rail Baltica line. The successful completion of Rail Baltica project by 2025-2026. The investment needs for Rail Baltica are EUR 5.8 billion for Lithuania, Latvia and Estonia. Substantial further EU support will be needed.

### Issue 4 – Competition in the maritime transport

Transparency and governance of port authorities is problematic and has created obstacles to competition in the maritime transport market. Port authorities (owned by the municipalities and governed jointly by municipalities and the central Government) have to perform commercial activities in compliance with the existing regulatory framework.

### Issue 5 - Emissions from road transport

Reducing emissions and final energy consumption in the road sector is a key challenge in Latvia. Despite having one of the lowest GDP per capita in the EU, Latvia is one of the countries with the highest emissions from new passenger cars.[92] The shares of renewable energy in the transport sector and of alternative fuels in the passenger car fleet are very low.

The proposed measures by the Latvian Government in July 2017 aim at increasing the currently low share of renewables in transport and also advancing with e-mobility, currently lagging behind the schedule, are both expected to contribute to the needed decarbonisation of the transport sector in the coming years.

Transport is the biggest energy consuming sector in Latvia, representing a 30% share in the total final energy consumption. It has significant savings potential.

[92] Source: European Environment Agency Report 19/2017, Monitoring Co2 emissions from new passenger cars and vans in 2016.

## Key facts and figures on transport in Latvia

### Modal split

Latvia has a relatively high share of public transport in its modal split for passenger transport.

The largest part of freight transport in Latvia is done via railways (more than 71%). Inland waterways do not play any role for freight transport.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Latvia | 82.8% | 13.0% | 3.5% | 0.7% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Latvia | 21.8% | 71.4% | 0.0% | 6.8% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the analysis of the World Bank, the performance of the logistics sector in Latvia has deteriorated continuously since 2014, both in terms of its global ranking and in terms of its indicator score.

In particular, for the areas of international shipments and logistics competence the results are weak. The performance appears a bit more stable when it comes to infrastructure.

World Bank Logistics performance indicator

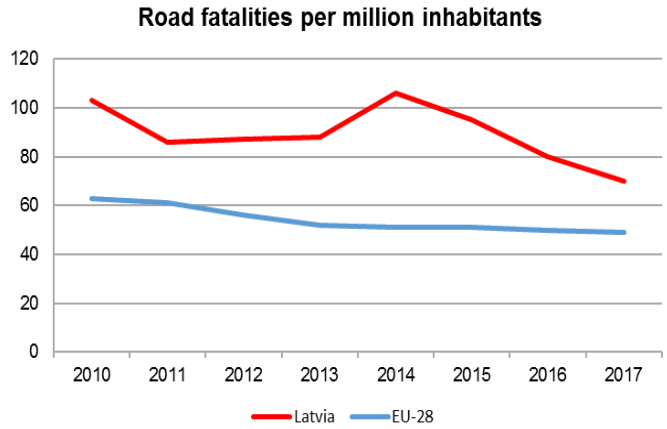
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| **LPI Rank** | **36** | **43** | **70** |
| Score | 3.4 | 3.33 | 2.81 |
| **Customs** | **35** | **45** | **49** |
| Score | 3.22 | 3.11 | 2.80 |
| **Infrastructure** | **51** | **41** | **49** |
| Score | 3.03 | 3.24 | 2.98 |
| **International shipments** | **33** | **44** | **81** |
| Score | 3.38 | 3.28 | 2.74 |
| **Logistics competence** | **42** | **37** | **81** |
| Score | 3.21 | 3.29 | 2.69 |
| **Tracking & tracing** | **30** | **39** | **77** |
| Score | 3.5 | 3.42 | 2.79 |
| **Timeliness** | **19** | **49** | **113** |
| Score | 4.06 | 3.62 | 2.88 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Road fatalities in Latvia are among the highest in the EU, 70 dead per million inhabitants in 2017 versus 49 in the EU. However Latvia reduced road deaths by 38% between 2010 and 2017 (EU average 20%).

Pedestrians are overrepresented in fatalities compared to their share in other EU countries (35% versus 21%).



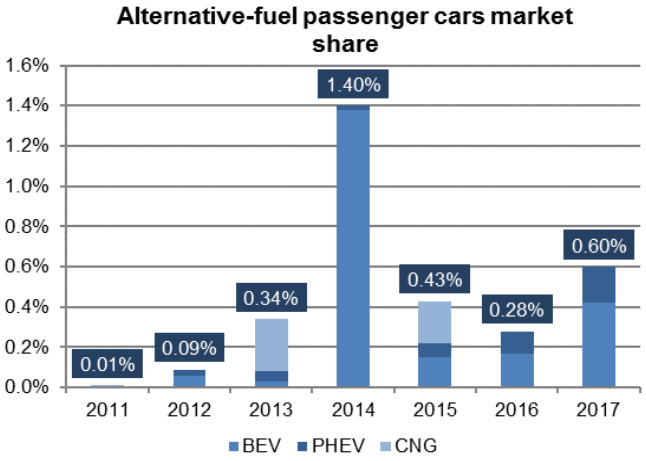

Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The share of alternative fuelled cars in total sales of new cars on the Latvian market is very small and the trend seems to be fluctuating. This is particularly noteworthy, as Latvia has particularly high $CO_2$ emissions from its passenger car fleet.

According to the European Alternative Fuels Observatory, in 2018, there were 7 public charging points per plug-in electric vehicle (EU average: 8).

Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).



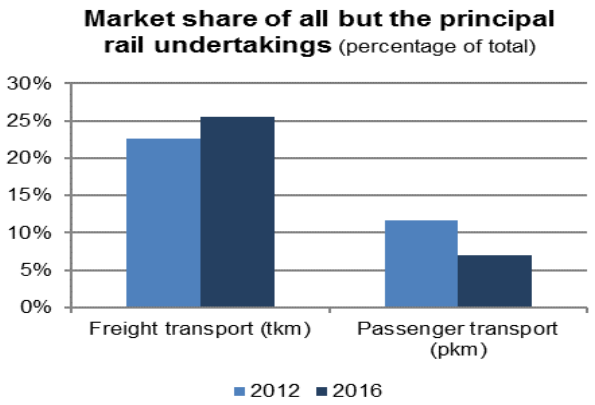

## Market opening in the railway sector

In Latvia, the infrastructure manager is separate from the rail service operators.

The domestic markets for freight and passenger rail transport are open for competition, but only a few operators are active on the Latvian market.

For many companies, the difference in track gauges represents an obstacle to market access.

Freight traffic is dominated by transit cargo from Russia and Belarus (as well as from countries further afield) to the three main ports of the country. Latvia's high railway-share of tonne-km in freight transport is mainly due to high transit volumes.

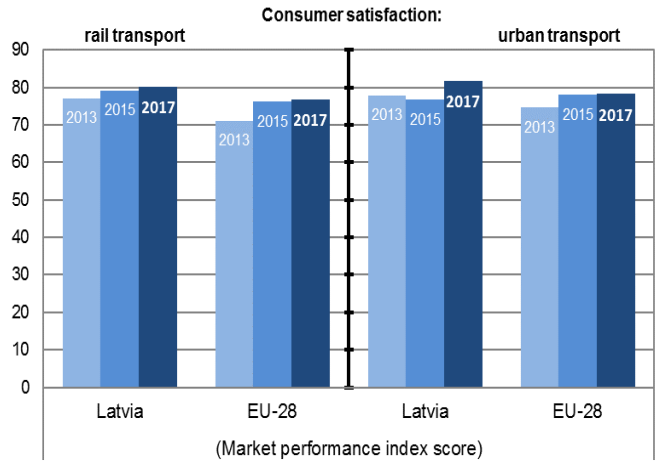



Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

The satisfaction of Latvian consumers with the country's public transport is relatively high and in any case above the EU average.

For rail transport, consumer satisfaction is steadily increasing since 2013. Only the satisfaction with the accessibility for passengers with reduced mobility and with complaint handling is below EU average, as indicated by Flash Eurobarometer 563 in 2016.

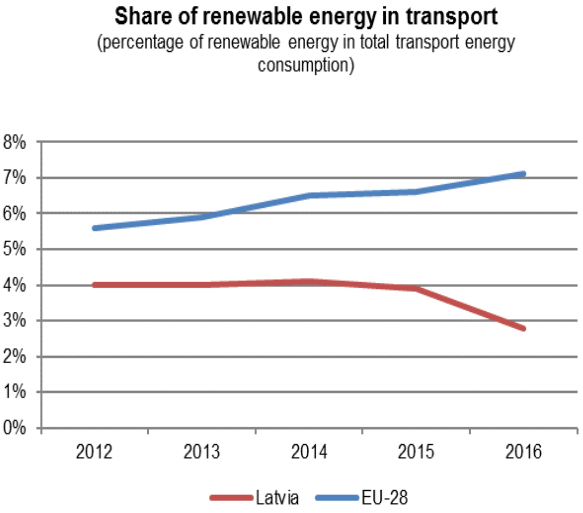



Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

The share of renewables in the Latvian transport sector is stagnating significantly below the EU average. In 2016, it has even decreased by 1 percentage point.

The main support scheme for the increased use of renewable energy in transport sector is a blending obligation of biofuels into liquid transport fuels.




Source: Eurostat.

## Completion of TEN-T Core Network in Latvia

For road, the Latvian part of the TEN-T Core Network is complete, whereas for the railway network, not even partial progress has been made so far.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 100% | 0% | 0% | not applicable |

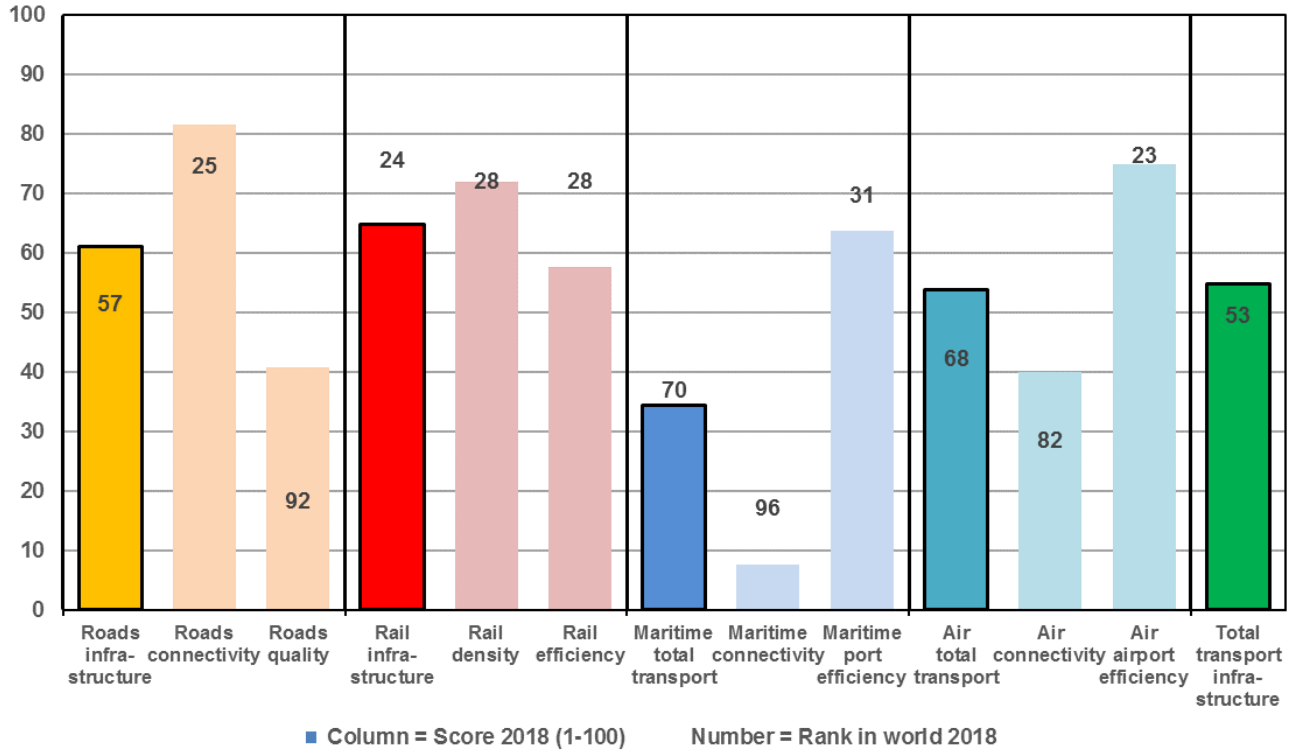
Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Latvia

In terms of infrastructure quality, Latvia receives relatively good ratings from the World Economic Forum for its railroad infrastructure and for road connectivity.

However, the quality of the road infrastructure is poor and this has also been reflected in previous editions of the World Economic Forum's Global Competitiveness Report. The maritime connectivity is very low.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Lithuania

## Main current issues in Lithuania

### Issue 1 - Road safety

Lithuania is one of the EU countries with high road fatality rates despite the significant decreases that have been recorded since 2007. Additional investments are needed to improve road safety.

In 2017, Lithuania reported 192 dead or 67 dead per million (EU average: 49), showing stagnation on fatalities after an impressive decrease in 2016 compared to 2015 (-21 %).

### Issue 2 - Competition In transport markets

No new entrants have emerged in rail freight and passenger transport markets over the period of 2010-2014 and in practice competition does not exist in the Lithuanian rail market which is legally opened to competition.

However, there are positive signs: a new independent regulatory body has been established and has started its activities. This is seen as an important prerequisite for creating favourable conditions for new entrants.

The long-pending issue of the lack of mandatory public tender procedures for the new Klaipėda port-land lease contracts, which constituted an unjustified restriction on freedom of establishment, has been solved through recent legislative amendments. Their implementation will need to be monitored.

### Issue 3 - Renewable energy in transport

There is no progress on the share of renewable energy in transport. The share of renewable energy in fuel consumption of transport is decreasing: 4.3% in 2014, 4.6% in 2015 and 3.6% in 2016.

Taxes on transport are the lowest in the EU and do not take into account vehicles' environmental performance. CO2-based motor vehicle taxes are not in place in Lithuania.

### Issue 4 - Electrification in rail, infrastructure modernisation

The Lithuanian rail network remains among the lowest electrified rail networks in the EU. No progress has been observed over the period of 2010-2014 and only 6.9% % of rail tracks are electrified.[93] However, with the help of different financial and funding instruments progress is expected over the coming years.

The 2019 European Semester country report, in its executive summary highlights that improving transport connections would boost productivity and growth potential.

[93] Source: Eurostat 2016. Only Ireland has a lower level of electrification constituting 2.7%.

## Key facts and figures on transport in Lithuania

### Modal split

In 2016, cars were the predominant passenger transport mode in Lithuania and their share in passenger transport was above EU average. At the same time, the reliance of passengers in Lithuania on buses and coaches as transport mode is almost equal to the EU average. The share of railways for passenger traffic in 2016 is significantly below the EU average. There is no tram and metro transport in Lithuania.

In freight transport, the share of road transport in Lithuania was far below the EU average in 2015. Railways played an important role for freight transport in 2015 and are far above the EU average.

The inland waterways do not play any role for freight transport in Lithuania.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| **Lithuania** | 89.9% | 9.1% | 1.0% | 0.0% |
| **EU-28** | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| **Lithuania** | 34.4% | 63.8% | 0.0% | 1.9% |
| **EU-28** | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the World Bank, the logistics sector's performance in Lithuania has deteriorated in 2018 after an impressive improvement in 2016.

In particular for infrastructure and international shipments both the score and the international rank of Lithuania's logistics sector are low.

World Bank Logistics performance indicator

| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| **LPI Rank** | **46** | **29** | **54** |
| Score | 3.18 | 3.63 | 3.02 |
| **Customs** | **44** | **28** | **46** |
| Score | 3.04 | 3.42 | 2.85 |
| **Infrastructure** | **39** | **27** | **66** |
| Score | 3.18 | 3.57 | 2.73 |
| **International shipments** | **55** | **31** | **74** |
| Score | 3.1 | 3.49 | 2.79 |
| **Logistics competence** | **57** | **30** | **54** |
| Score | 2.99 | 3.49 | 2.96 |
| **Tracking & tracing** | **49** | **27** | **50** |
| Score | 3.17 | 3.68 | 3.12 |
| **Timeliness** | **43** | **17** | **43** |
| Score | 3.6 | 4.14 | 3.65 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

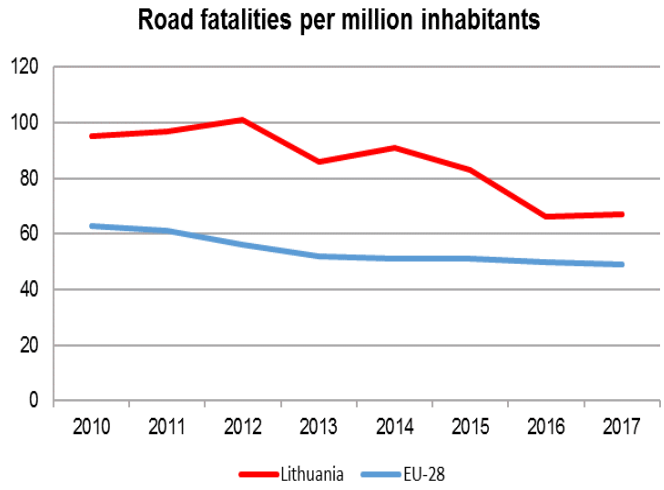
## Road safety

Road fatalities in Lithuania are above the EU average (67 dead per million inhabitants in 2017).

Lithuania reduced its number of road deaths by 58% between 2001 and 2010 (EU average: 43%). Lithuania further reduced road deaths by 36% between 2010 and 2017 (EU average 20%).

The share of pedestrian fatalities is significantly higher (35%) than the EU average (21%).

Lithuania has adopted a long-term 'vision zero' approach and a strategic target for 2017: to reach a fatality rate of no more than 60 dead per million inhabitants.



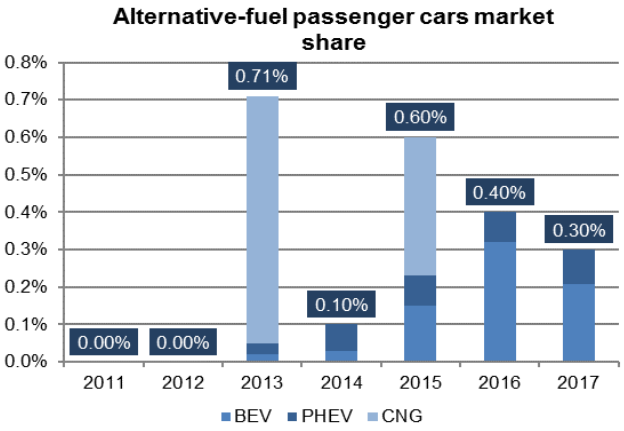

Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The share of alternative fuels in road transport is low in Lithuania. Attention is placed on electric vehicles without currently possessing a dense network of publicly accessible recharging points. The spatial distribution of recharging points does not currently cover the needs of vehicles in terms of distance requirements.

Lithuania has hybrid buses (electricity + CNG) in its public transport fleet. Bicycles, as well as their infrastructure, also receive support.

Lithuania currently has a sufficient network of CNG refuelling points. Targets for an increase of the number of CNG refuelling points by 2020 and 2025 are foreseen. According to the European Alternative Fuels Observatory, in 2018, the number of public charging points per plug-in electric vehicle amounted to 7 (EU average: 8).




Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).

## Market opening in the railway sector

Obstacles to the efficient functioning of the internal rail market persist, and competition in the rail sector is limited despite an, in theory, opened rail market. Lithuania needs to strengthen the efforts to use open tenders in awarding public services contracts in rail, if it wants to find new rail passenger market entrants.

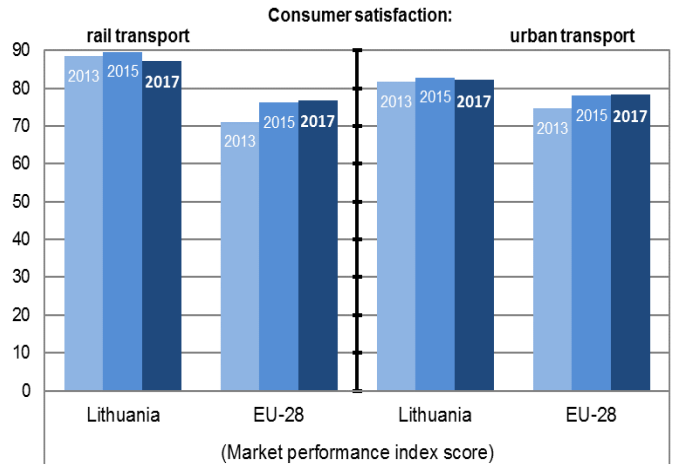
Rail (freight) traffic is largely dominated by East-West flows, while the North-South axis is underdeveloped.

## Consumer satisfaction with public transport

Consumer satisfaction with rail transport is very high in Lithuania.

However, a special Eurobarometer survey in 2018 (Flash Eurobarometer 463) showed a high level of dissatisfaction, namely with complaint handling and accessibility for passengers with reduced mobility.

Satisfaction with urban transport is also above the EU average.



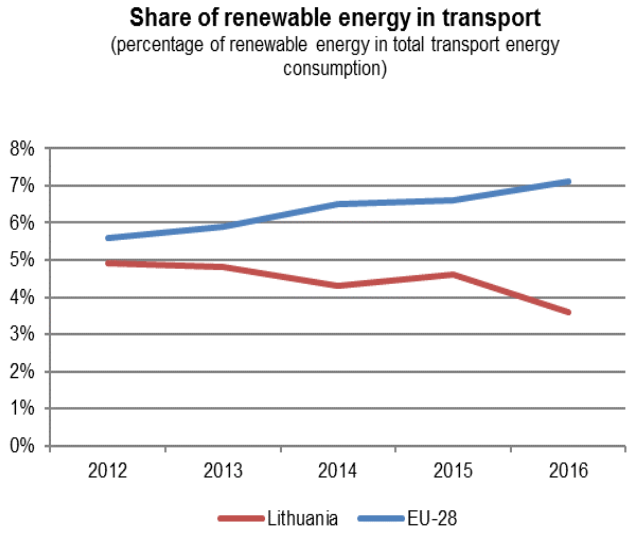

Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

Lithuania has already achieved some of its Europe 2020 objectives, in particular the overall renewable energy target, as well as the targets regarding the reduction of greenhouse gas emissions.

Nevertheless, with a renewable energy share of 3.6% in 2016 (1 percentage point less than in 2015), the transport sector still has some way to go towards reaching the Europe-2020 target of 10%.

Taxes on transport in Lithuania are among the lowest in the EU, and besides being low, also do not take into account the environmental performance of vehicles.




Source: Eurostat.

## Completion of TEN-T Core Network

The Lithuanian part of the TEN-T Core Network essentially still needs to be built. Only the inland waterways are fully ready.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 7% | 12% | 0% | 100% |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

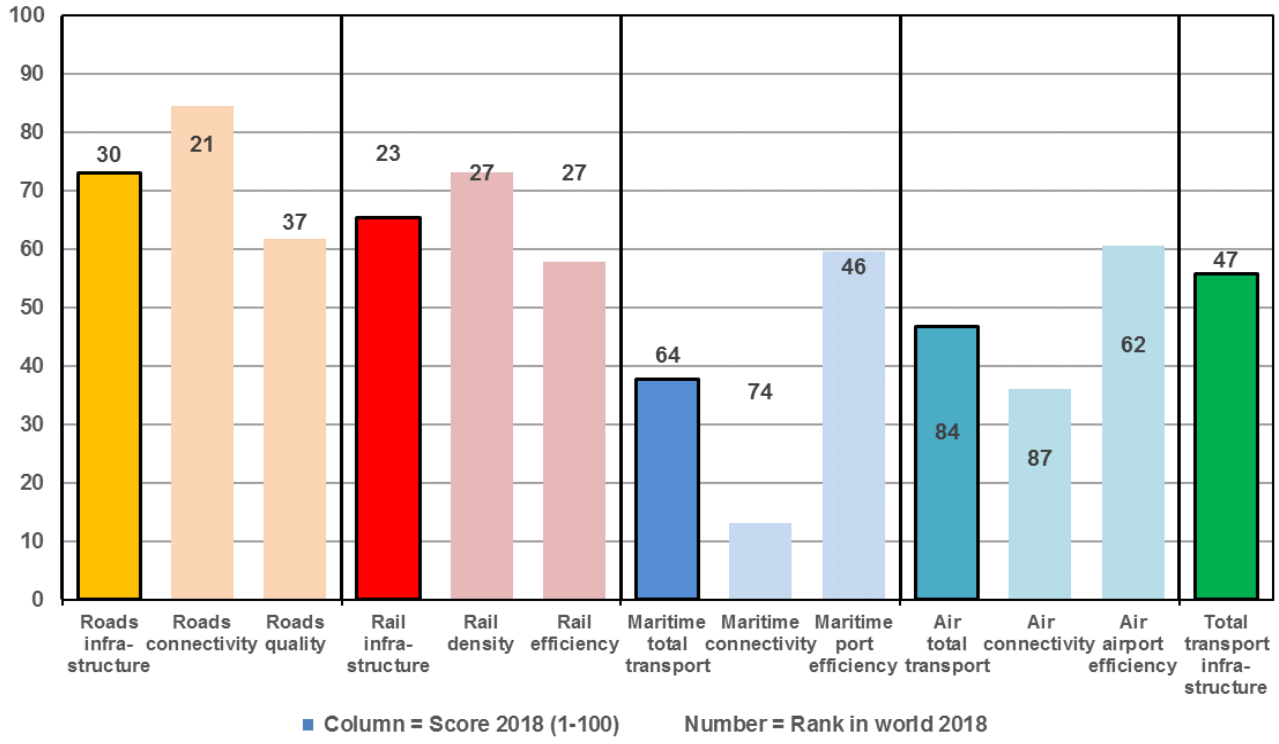
## Quality of the transport infrastructure in Lithuania

With respect to the assessment of the transport infrastructure quality, Lithuania scores around the EU average for road and railway infrastructure.

Maritime and air transport connectivity score rather low. The efficiency of seaports and airports is high enough to result in a moderately positive picture of the maritime and air transport infrastructure in Lithuania.

Yet, the overall quality of the transport infrastructure is about ten points below the EU average.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Luxembourg

## Main current issues in Luxembourg

### Issue 1 – Emissions from (road) transport and congestion

Luxembourg is expected to miss its 2020 target for reducing greenhouse gas emissions. Air pollution and traffic congestion at peak hours are major problems for the country, exacerbating nitrogen dioxide concentrations and greenhouse gas emissions. In 2016, more than half of greenhouse gas emissions came from the transport sector. The low transport fuel taxation, the high number of company cars and the high level of house prices are amongst the main factors stimulating the high levels of car use and increased number of cross-border workers.

This also results in severe congestion problems and pollution peaks. Solutions, such as developing multimodal transport and park and ride stations are being developed, while the take-up of clean cars remains very slow.

## Key facts and figures on transport in Luxembourg

### Modal split

The modal split for both passenger and freight transport shows a clear preference for road transport over railways, trams and metro, even more when compared to the EU average.

On the other hand, Luxembourg has a relatively important share of inland waterways in its freight transport modal split.

Modal split for passenger and freight transport in 2016

| | Modal split for passenger transport (shares based on passenger-kilometres) | | | |
|---|---|---|---|---|
| | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
| **Luxembourg** | 83.1% | 12.3% | 4.6% | 0.0% |
| **EU-28** | 81.3% | 9.3% | 7.6% | 1.8% |

| | Modal split for freight transport (shares based on tonne-kilometres) | | | |
|---|---|---|---|---|
| | Road | Railways | Inland Waterways | Pipeline |
| **Luxembourg** | 87.9% | 6.2% | 5.9% | 0.0% |
| **EU-28** | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the analysis of the World Bank, Luxembourg's logistics sector is globally still very competitive, but its international ranking in 2018 has drastically declined compared to the two previous editions of the LPI in 2014 and 2016.

The most marked changes can be observed for the scores and international ranking positions of international shipments and infrastructure in Luxembourg.

World Bank Logistics performance indicator

| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | **2018** |
|---|---|---|---|
| **LPI Rank** | **8** | **2** | **24** |
| Score | 3.95 | 4.22 | 3.63 |
| **Customs** | **10** | **9** | **20** |
| Score | 3.82 | 3.90 | 3.53 |
| **Infrastructure** | **15** | **4** | **25** |
| Score | 3.91 | 4.24 | 3.63 |
| **International shipments** | **1** | **1** | **31** |
| Score | 3.82 | 4.24 | 3.37 |
| **Logistics competence** | **14** | **10** | **19** |
| Score | 3.78 | 4.01 | 3.76 |
| **Tracking & tracing** | **22** | **8** | **29** |
| Score | 3.68 | 4.12 | 3.61 |
| **Timeliness** | **1** | **1** | **26** |
| Score | 4.71 | 4.8 | 3.9 |

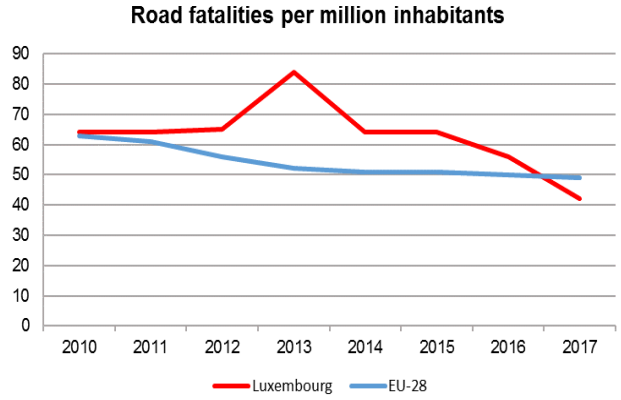
Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Luxembourg had for the first time in 2017 a below-average position with respect to the annual amount of fatalities per million inhabitants (42 versus 49 on average in the EU).

More than half of the fatal victims were non-national road users. A lot of road users in Luxembourg are transit users.

For buses and lorries, mandatory inspection periods are shorter in Luxembourg than most common periods in the EU.



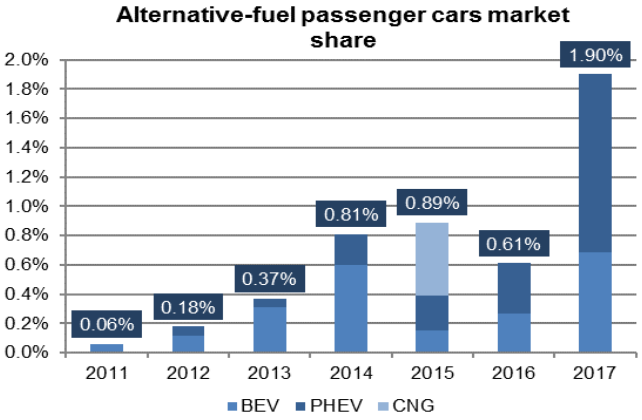

Source: DG MOVE - CARE data.

## Alternative fuels in road transport

Since 1 January 2017, zero emission vehicles (battery electric and fuel cell electric vehicles) as well as bikes and pedelec bikes benefit from a tax allowance of EUR 5 000 and EUR 300, respectively. The use of less polluting (company) vehicles is also encouraged with a re-evaluation system that lowers the costs of less polluting cars for employers, incentivising employers to opt for those vehicles as a benefit in kind.

Whether these measures are sufficient to ensure a higher uptake of electric cars is still to be seen. At least in 2017, the increase of the market share of battery powered vehicles has been very big.

On the other hand, the infrastructure does not seem to keep pace with this development. According to the European Alternative Fuels Observatory, in 2018, there were only 4 public charging points per plug-in electric vehicle (EU average: 8).




Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).

## Market opening in the railway sector

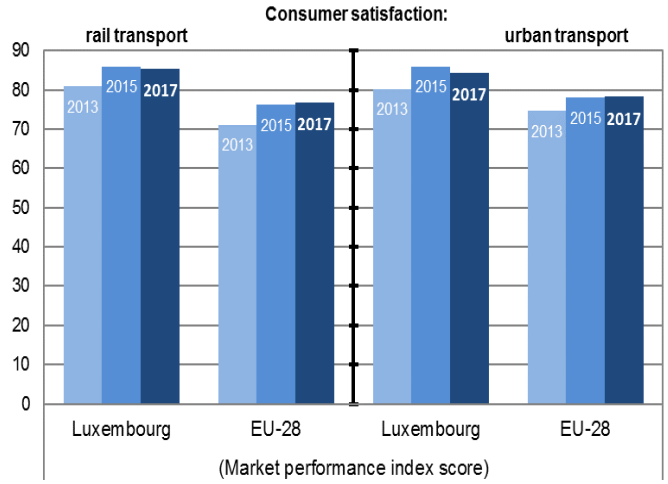
Next to running passenger and freight trains, the national rail operator *Société Nationale des Chemins de Fer luxembourgeois* (*CFL*) is also entrusted with the role of infrastructure manager. Luxembourg is one of the countries where an integrated infrastructure manager works alongside an independent body in charge of capacity allocation.

The *Institut Luxembourgeois de Régulation* (*ILR*) is the independent national regulatory body for the railway sector. Its job is to ensure that there is no discrimination between railway undertakings and that there is effective competition in the network. Any applicant wishing to do so may bring a matter before the *ILR* if it considers to have been unfairly treated, discriminated against or has suffered from any other prejudice.

Whereas international train connections are generally operated by foreign rail companies, the *CFL* controls 100% of the domestic traffic.

## Consumer satisfaction with public transport

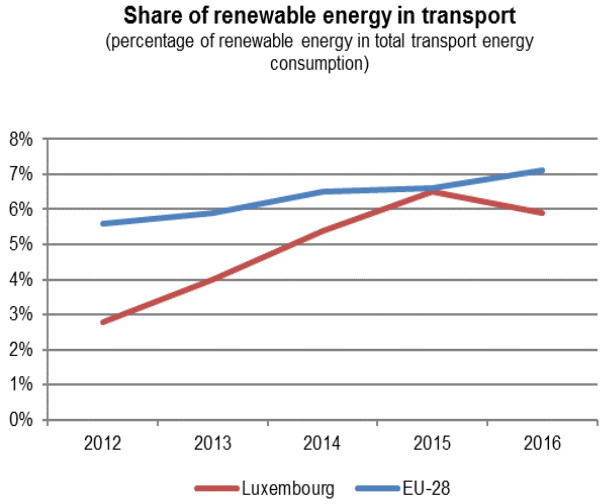
Consumer satisfaction with both rail and urban transport in Luxembourg has risen from 2013 to 2017 and is above the EU average.




Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

In Luxembourg, the only support scheme for renewable energy sources used in transport is a quota system. This scheme obliges companies importing or producing petrol, gas or diesel fuels to ensure that biofuels make up a defined percentage of the company's total annual sale of fuel.




Source: Eurostat.

## Completion of TEN-T Core Network in Luxembourg

The TEN-T Core Network in Luxembourg is complete for inland waterways, but gaps remain, mainly for the road network.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 53% | 85% | not applicable | 100% |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

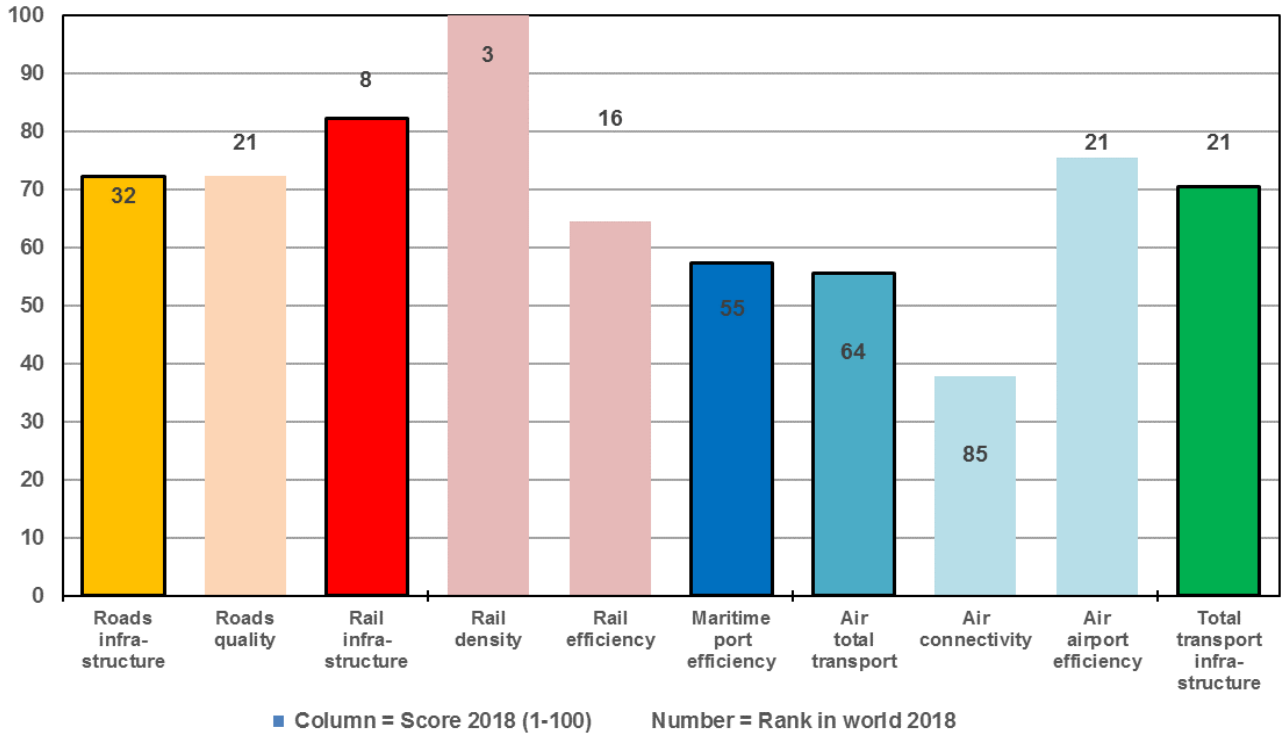
## Quality of the transport infrastructure in Luxembourg

In the World Economic Forum Competitiveness Index 2018, Luxembourg's roads rank 21st worldwide on the index of the perception of the quality of its transport infrastructure. The country reaches the best ranking for its railroad infrastructure (8th).

In absolute terms, the perceived quality of road and rail infrastructure in Luxembourg is still relatively high. However, there seems to be a slightly negative trend over the last yeas. Inadequate supply of infrastructure is assessed as the 8th most problematic issue for doing business in Luxembourg.

Luxembourg fares particularly badly when it comes to ease of access to sea ports (55th rank worldwide) and air connectivity (85th).

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Hungary

## Main current issues in Hungary

### Issue 1 – Accessibility & road congestion

The quality of the road and rail networks remains inadequate.[94] This, together with a persistent increase in congestion, represents a barrier to accessibility and productivity. In this context, the rehabilitation programme[95] of the long neglected lower class road network and investment in rail connectivity are positive developments. The implementation of the plan will be crucial.

Hungary's transport system is highly centralized towards the capital, as evidenced by the structure of the road and the railway networks, both of which need significant modernisation.

At the same time, while motorisation is steadily increasing[96], plans for a road access charge in Budapest appear to have been shelved. In recent years, road congestion has been attenuated by sluggish economic performance. This, however, is changing. Urban congestion may become a barrier to productivity in Hungary[97] as employment rate and motorisation[98] are picking up.

### Issue 2 - Road safety

The high number of road accidents continues to represent a substantial burden on society and the economy. Despite a substantial decrease of the fatality rate from 2007 to 2011, there has been limited progress over the last 5 years[99]. When compared to the number of passenger cars and kilometres driven, Hungary remains among the worst performers in the EU. Among other factors, the quality of road infrastructure and the vehicle fleet play a role in the evolution of the country's safety record. The protection of vulnerable road users, such as pedestrians, cyclists and motorcyclists is a particular cause for concern.

### Issue 3 – Inland navigation / Danube challenge

Low water conditions on the Danube and unfavourable regulation causes operational problems for the inland navigation sector resulting in delays of transit times and additional operational costs, i.e. lower competitiveness. The inland navigation infrastructure needs upgrading to make navigability on the Danube more reliable. In particular, multimodal transhipment possibilities in the main ports along the Danube constitute important bottlenecks. Hungary submitted several inland waterway projects under the first calls of the Connecting Europe Facility and proposals in order to improve the Danube's navigability.

---

[94] According to Magyar Közút, 2/3 of the entire road network is in inadequate, 54% in bad condition, while only 15% is in good or adequate condition. The situation is worse on secondary roads but half of the main road network is also in bad or inadequate condition: http://internet.kozut.hu/Lapok/az-allami-kozuthalozat-fo-jellemzoi.aspx.

[95] http://internet.kozut.hu/Lapok/komplex-utfelujitasi-program.aspx.

[96] By 2-3 % per year since 2011. New passenger car registrations increased by 20 % from 2016 to 2017, the second highest rate in the EU.

[97] According to JRC calculations, urban areas in Hungary were among the 5 most congested in Europe in 2013 (in terms of average ratio of actual speed versus free-flow speed).

[98] EU transport in figures – Statistical Pocketbook 2017, Tables 2.6.2 and 2.6.6, http://ec.europa.eu/transport/facts-fundings/statistics/pocketbook-2017_en.htm and Hungarian Central Statistical Office, Tables 4.6.11, 4.6.15 and 4.6.17, https://www.ksh.hu/szallitas_kozlekedes.

[99] 606 road deaths reported in 2012 and 607 in 2016; preliminary figures for 2017 do not show any change compared to the previous year.

## Key facts and figures on transport in Hungary

### Modal split

In 2016, car trips represented two thirds of the passenger-kilometres travelled, recording a lower use of passenger cars by around 15% than the EU average. At the same time, the use of buses and coaches in Hungary is more than twice as high as the EU average with railways and tram & metro use also well above the EU average.

For land freight transport, road covers just over 60% of the activity, i.e. significantly below the EU average. A difference of roughly 10 percentage points can be seen in the higher share of railways in Hungary compared to the EU average, while inland waterway transport is slightly below the EU average.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Hungary | 66.5% | 20.9% | 9.0% | 3.6% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Hungary | 62.4% | 26.8% | 5.0% | 5.8% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

In terms of how efficiently countries can ship their products to other countries, Hungary is not lagging behind. It has shown consistent performance in its LPI over the past 4 years, with significant improvements in tracking and tracing from 2016 to 2018.

World Bank Logistics performance indicator

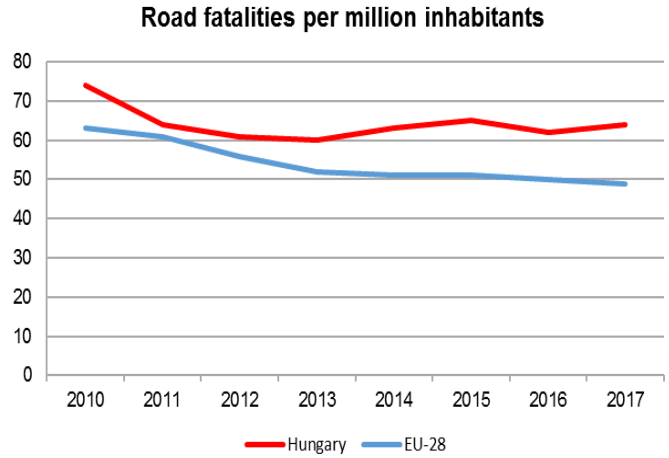
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 33 | 31 | 31 |
| Score | 3.46 | 3.43 | 3.42 |
| Customs | 48 | 49 | 27 |
| Score | 2.97 | 3.02 | 3.35 |
| Infrastructure | 40 | 32 | 30 |
| Score | 3.18 | 3.48 | 3.27 |
| International shipments | 32 | 34 | 43 |
| Score | 3.4 | 3.44 | 3.22 |
| Logistics competence | 37 | 34 | 38 |
| Score | 3.33 | 3.35 | 3.21 |
| Tracking & tracing | 15 | 41 | 26 |
| Score | 3.82 | 3.4 | 3.67 |
| Timeliness | 20 | 33 | 32 |
| Score | 4.06 | 3.88 | 3.79 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Road fatalities in Hungary are above the EU average. Despite a substantial decrease of the fatality rate from 2007 to 2011, there has been limited progress over the last five years. When compared to the number of passenger cars and kilometres driven, Hungary remains among the worst performers in the EU.

The share of pedestrian and cyclists fatalities is significantly higher (27% and 13%) than the EU average (21% and 8%). Among other factors, the quality of road infrastructure plays a role in the evolution of the country's safety record. The protection of vulnerable road users is a particular cause for concern.

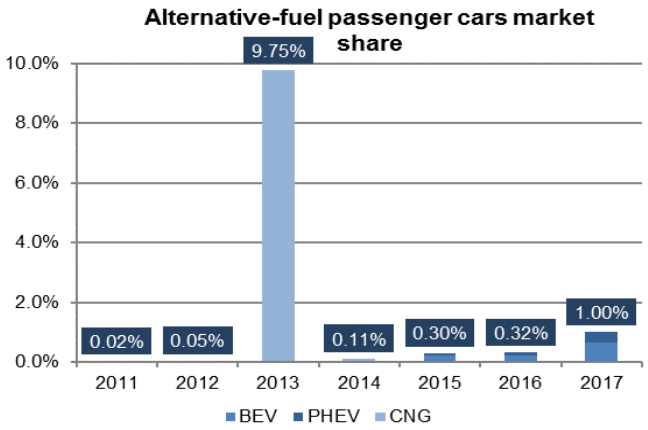



Source: DG MOVE - CARE data.

## Alternative fuels in road transport

In 2013, there was a sudden rise in the number of new passenger cars using safe compressed natural gas (CNG) amounting to 5 496 cars. Despite that, the share of alternative-fuelled cars remains very low. It remains to be seen to what extent the increase in the market share of electric cars in 2017 will be sustained in the future.

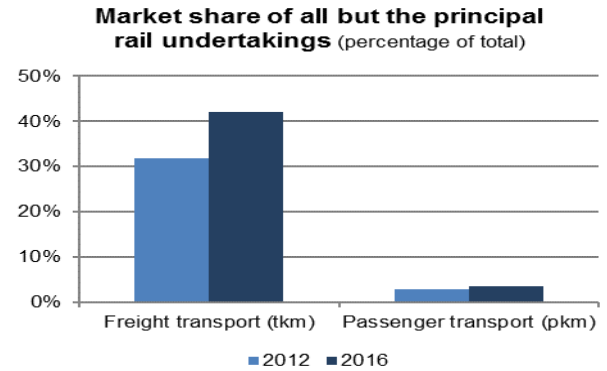
Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).




## Market opening in the railway sector

Despite passenger transport being open to new entrants, domestic rail passenger transport is not fully liberalised in Hungary. While the rail freight market has opened up for competition, in passenger transport the market share of competitors to the incumbent was at 3-3.5% in 2016.

There seems to be no intention to fully separate the infrastructure manager from the rail passenger transport operator. The politically sensitive preferential tariff system providing discounts to a great proportion of passengers in an untargeted way has been maintained.

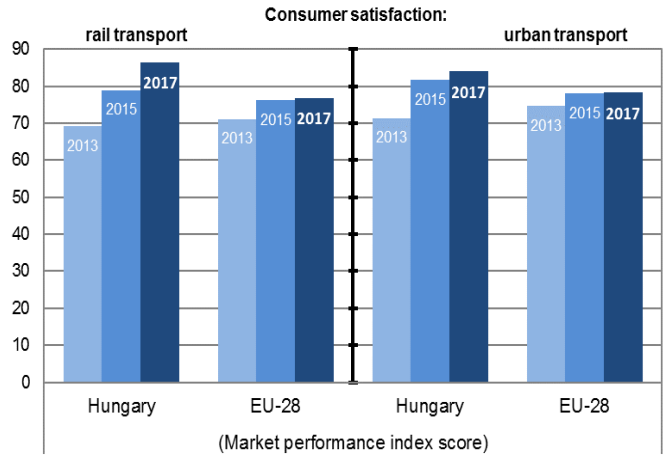



Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

The satisfaction of consumers in Hungary with rail and urban transport seems to have improved a lot from 2013 to 2017.

However, a special Eurobarometer Survey in 2018 on the satisfaction with rail passenger services (Flash Eurobarometer 463) has indicated that consumer satisfaction has significantly decreased since 2013 as far as complaint handling, frequency of trains and punctuality are concerned. Also the satisfaction with the accessibility for passengers with reduced mobility is below the EU average.



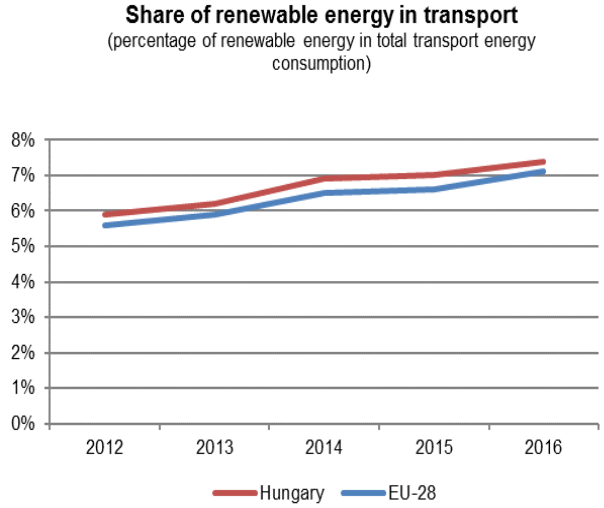

Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

The share of renewable energy in transport is slightly above the EU average.

In Hungary, the main support scheme for the promotion of renewable energy sources in the transport sector is a quota system. This support scheme obliges fuel retailers to ensure that biofuels and hydrogen make up a certain percentage of their yearly sales.

Furthermore, certain subsidy programmes which allocate funds from the EU as well as state funds also target the greening of the transport sector, in addition to the Territory and Settlement Development Programme (TOP) and the Competitive Central Hungary Operational Programme (CCHOP).




Source: Eurostat.

## Completion of TEN-T Core Network in Hungary

The completion of the TEN-T Core Network in Hungary has been accomplished for inland waterways and is well on track for the road network.

For the rail network, only a very small share is completed so far.

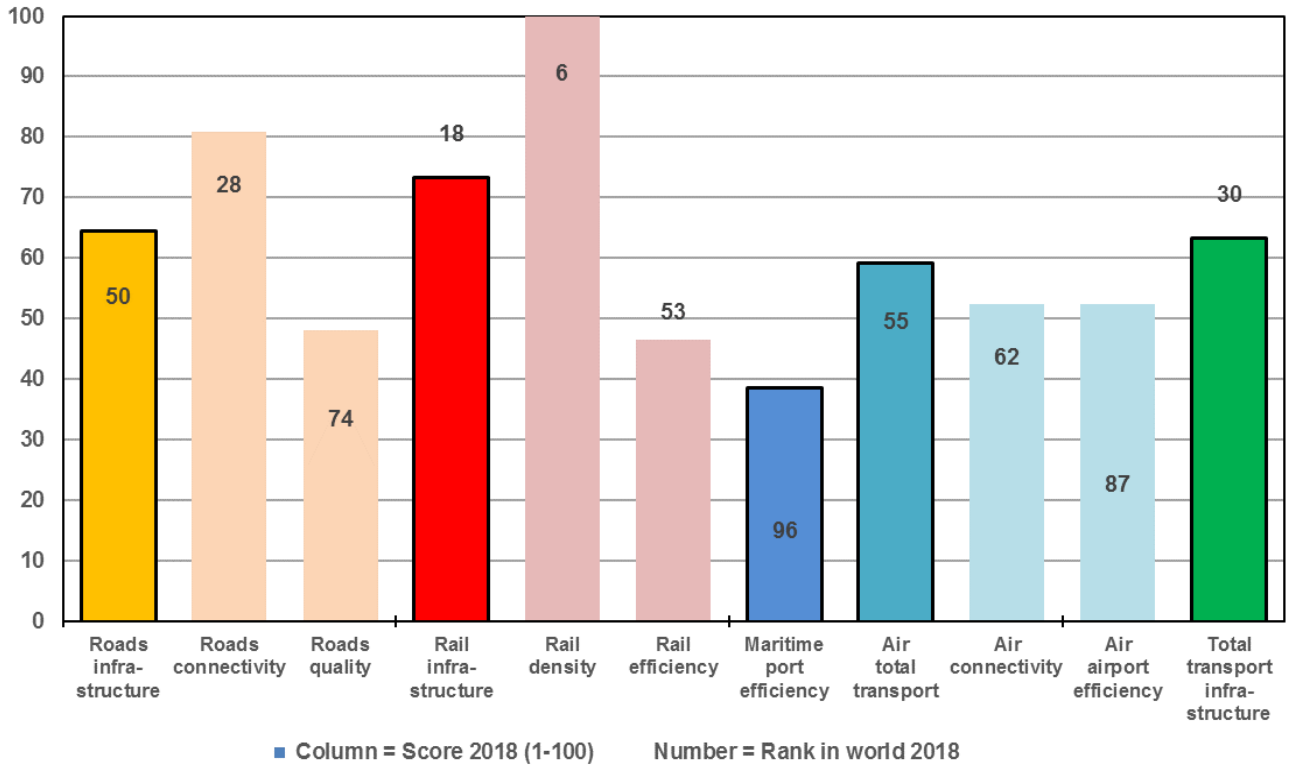
| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 81% | 8% | 0% | 100% |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Hungary

According to the most recent ranking of the Global Competitiveness Report by the World Economic Forum, the perception of the overall quality of transport infrastructure in Hungary scored 63/100. Most notably, the quality of roads and railway infrastructure is high, while the access to seaports is a problem. As for the air transport infrastructure, the connectivity is relatively high. And the overall quality of the air transport infrastructure is only slightly below EU average.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network.



# Malta

## Main current issues in Malta

### Issue 1 – Congestion and pollution from road transport

A very high motorisation rate combined with an ageing car fleet, an inefficient road network and an established preference for private transport have resulted in significant road congestion problems and increased $CO_2$ emissions. Road infrastructure remains under heavy pressure, is often highly congested and considered one of Malta's weak points, particularly from an investor's point of view. In 2012, total external costs of traffic congestion (air pollution, climate change, noise, accidents and economic costs of congestion) were estimated at EUR 245 million representing roughly 4% of GDP.[100] These costs were estimated to rise to EUR 317 million by 2020 if no policy measures were taken to address the issue.[101]

Maltese authorities estimate even higher congestion costs for 2025. These would amount to EUR 721 million of economic costs of congestion (time spent in traffic and additional fuel costs) and costs linked to accidents, if only a minimum amount of policy measures is put in place by national authorities to reduce traffic.

Scope for multimodal transport is limited, due to the absence of a rail network and inland waterways and no scope for their development. This creates challenges for financing through TEN-T, given the limited financing for road projects. Although the authorities have made substantial efforts to develop a coherent strategy addressing many of the above issues, Malta has a below EU-average GDP and co-financing major infrastructure projects is a challenge.

### Issue 2 –Infrastructure investment gap

Insufficient transport infrastructure and rising congestion costs are a barrier to investment. The increase in the number of vehicles and in traffic leads to rising greenhouse gas emissions and negatively affects air quality. They may also negatively impact tourism, which represents an important pillar of Malta's economy. Therefore, the need to tackle the infrastructure gap goes hand in hand with the need for clean transport solutions. […] Increasing economic activity may exacerbate existing infrastructure bottlenecks, putting even more pressure on environmental resources.

[100] Source: Attard, Maria; Van Brockdorff, Philip; Bezzina, Frank (2015): The external costs of passenger and commercial vehicles use in Malta, https://www.um.edu.mt/library/oar//handle/123456789/5014.

[101] Source: Transport Malta, National Transport Strategy 2050 and National Master Plan 2025.

# Key facts and figures on transport in Malta

## Modal split

Road transport is the only mode of land transport available in Malta. The share of passenger cars in the modal split is comparable to the EU-average and buses and coaches transport cover a much larger share than the EU average.

There are no official statistics on Maltese freight transport, but due to the absence of railways and inland waterways, it must be almost exclusively by road.

### Modal split in 2016 (only available for passenger transport)

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| **Malta** | 82.6% | 17.4% | 0.0% | 0.0% |
| **EU-28** | 81.3% | 9.3% | 7.6% | 1.8% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

## Performance of the logistics sector

The Logistics performance indicator published by the World Bank provides a benchmark of a country's performance on trade logistics. Malta has generally scored poorly compared to other EU countries in the indicators of 2010 to 2018. In 2018, Malta scored particularly low on customs, international shipments and logistics competence.

### World Bank Logistics Performance Indicator

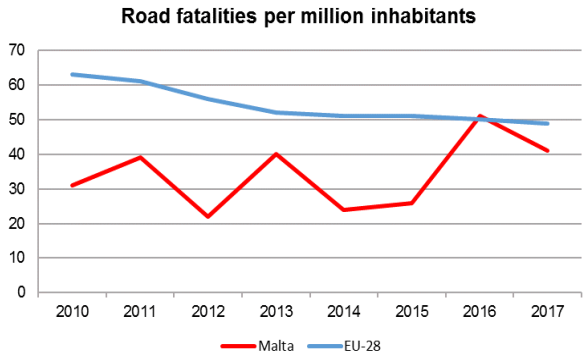
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| **LPI Rank** | **51** | **56** | **69** |
| Score | 3.11 | 3.07 | 2.81 |
| **Customs** | **46** | **59** | **60** |
| Score | 3.00 | 2.78 | 2.70 |
| **Infrastructure** | **47** | **55** | **53** |
| Score | 3.08 | 2.94 | 2.9 |
| **International shipments** | **41** | **55** | **89** |
| Score | 3.23 | 3.09 | 2.7 |
| **Logistics competence** | **54** | **65** | **66** |
| Score | 3 | 2.85 | 2.8 |
| **Tracking & tracing** | **52** | **56** | **75** |
| Score | 3.15 | 3.12 | 2.8 |
| **Timeliness** | **81** | **50** | **98** |
| Score | 3.15 | 3.61 | 3.01 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Malta generally scores favourably on road fatality indicators compared to the EU average. In Malta a relatively high share of fatalities concern motorcyclists. Statistical normalisation can be unreliable due to the small sample size in Malta.

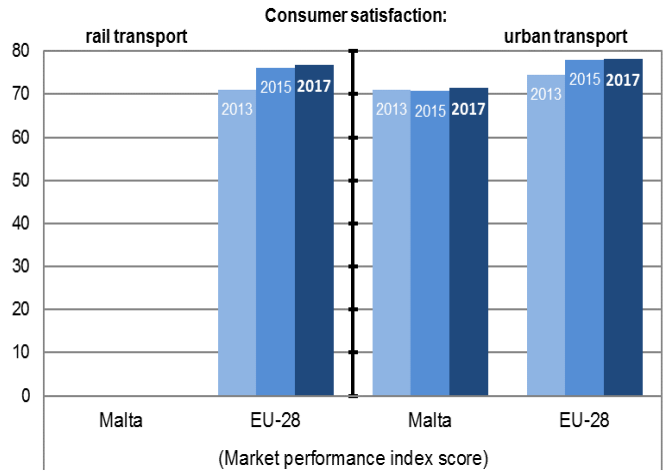
Malta adopted a Road Safety Strategy for the period 2014 to 2024. The Strategy sets a target of 50% reduction in fatalities, 30% in grievous injuries and 20% in slight injuries by 2020 through a range of strategic interventions and Government commitments.




Source: DG MOVE - CARE data.

## Consumer satisfaction with public transport

Malta does not have railways. Consumer satisfaction with public transport by bus in Malta is stagnating since 2013, against the European trend, and the overall satisfaction is considerably lower than on average in the EU.

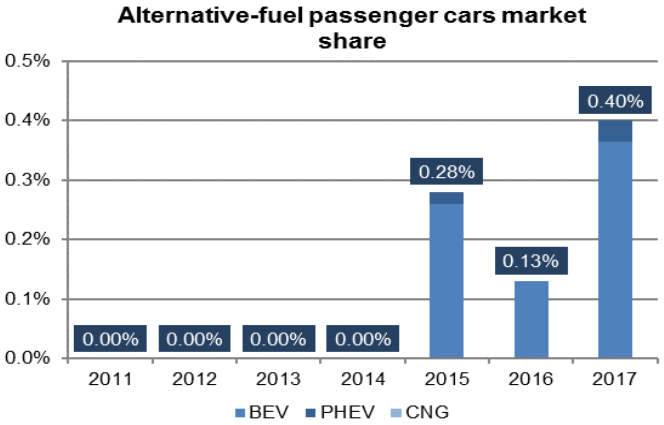



Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Alternative fuels in road transport

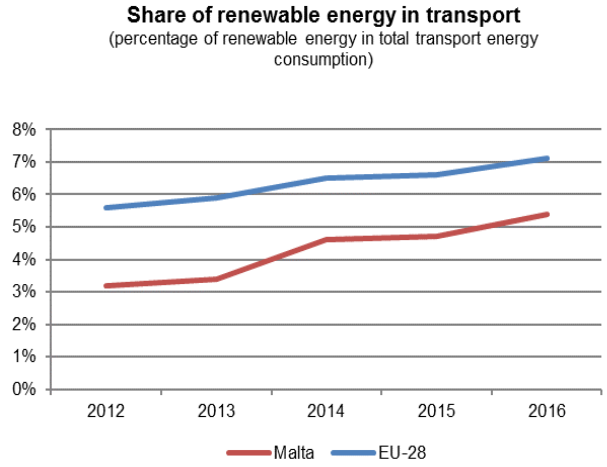
The market for alternative fuelled vehicles and recharging points is still emerging, thus no trend can be discerned yet.

Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).




## Renewable energy in transport

The share of renewable energy in transport has increased from 2012 to 2016, but is significantly below the EU average and the 2020 target of 10%. Because of the climatic conditions of Malta only biodiesel is used, as the VOC emissions associated with bioethanol are considered to constitute a concern to public health.

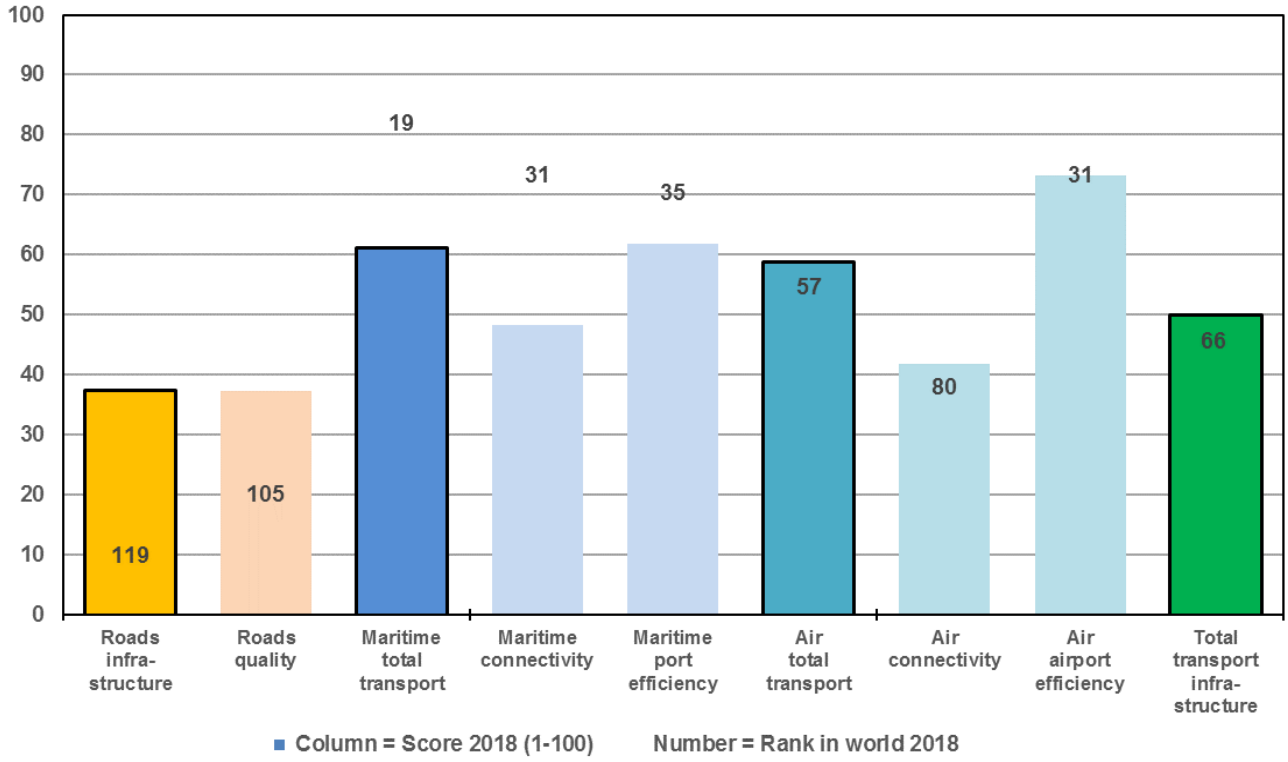



Source: Eurostat.

## Quality of the transport infrastructure in Malta

In the Global Competitiveness Report 2018, Malta ranks low for the quality of its road infrastructure. The World Economic Forum's infrastructure satisfaction indicators do not provide underlying reasons for possible dissatisfactions. However, with respect to the road infrastructure, possible root causes could be the limited road network and congestion. In this respect, improvements would be needed.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Netherlands

## Main current issues in the Netherlands

### Issue 1 - Congestion

Congestion remains a specific challenge in a dense and well equipped country that is a key player in EU logistics with the biggest EU port in Rotterdam and one of the biggest airports in Schiphol. The issue has been alleviated with additional infrastructure works but it still remains an issue with high social costs and hours wasted stuck in traffic.

### Issue 2 - Mainport strategy

For years, the Netherlands have made the strategic choice to focus on one big seaport (Rotterdam) and one big airport (Schiphol) to develop and maintain its logistic hub function in Europe. Overall this has served them well and allowed for a clear development plan for both ports. The strategy is now coming under pressure as Schiphol airport is coming close to its maximum capacity and alternative sites are being explored to ensure future growth in air connectivity. The Government is looking to further develop *Lelystad Airport* as a second international hub. However, there is some resistance from stakeholders and citizens.

## Key facts and figures on transport in the Netherlands

### Modal split

It should be noted that cars have a higher share in the modal split for passenger transport than the EU average, whereas buses, trams and metros have a much lower share. Bicycles are not covered by these figures. Yet, the relatively high share of passenger cars hints at a contributing factor to congestion problems.

For freight, the dominant transport modes in the Netherlands are road and inland waterways.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Netherlands | 85.5% | 3.0% | 10.9% | 0.6% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Netherlands | 46.8% | 5.7% | 42.3% | 5.2% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

The Netherlands have a strong export-oriented economy. This is supported by its strategic maritime location close to the sea, at the end of a network of sea-going rivers and inland waterways and along a main shipping line. The Netherlands also make good use of their main and strategic airport (Schiphol) providing a good connection via the skies.

The country's geographic location and the importance of its hubs are also reflected in the very high scores the Netherlands achieve in the World Bank Logistics performance indicator.

World Bank Logistics performance indicator

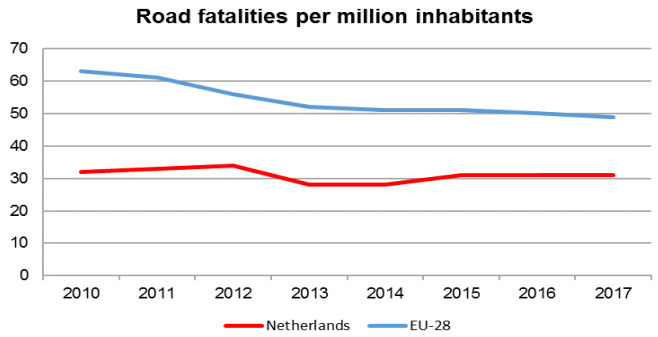
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 2 | 4 | 6 |
| Score | 4.05 | 4.19 | 4.02 |
| Customs | 4 | 3 | 5 |
| Score | 3.96 | 4.12 | 3.92 |
| Infrastructure | 3 | 2 | 4 |
| Score | 4.23 | 4.29 | 4.21 |
| International shipments | 11 | 6 | 11 |
| Score | 3.64 | 3.94 | 3.68 |
| Logistics competence | 2 | 3 | 5 |
| Score | 4.13 | 4.22 | 4.09 |
| Tracking & tracing | 6 | 6 | 11 |
| Score | 4.07 | 4.17 | 4.02 |
| Timeliness | 6 | 5 | 11 |
| Score | 4.34 | 4.41 | 4.25 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

On road safety, the Netherlands belong to the best performing countries in Europe and every year the fatality rate has been lower than the EU average. Nevertheless, the Netherlands did not reduce road deaths since 2010 (EU average reduction: 20%) and the share of cyclist fatalities is the highest in the EU (19%). This may be due to a strong bicycle culture and many cyclists on the roads.

A strategic road safety plan 2008-2020 specifies 12 priority areas: pedestrians, cyclists, single-person accidents, children, elderly, novice drivers, mopeds, scooters, microcars, motorcyclists, driving under the influence of alcohol, speeding, lorries and delivery vans, 50 and 80 km/h roads.

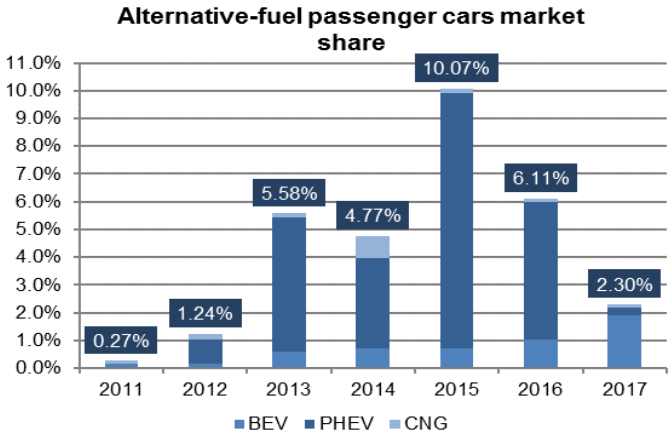



Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The Dutch policy on alternative fuels puts a lot of emphasis on electric vehicles. The current overall share of electric vehicles on the road is already above 1% and among the new cars sold in 2016, roughly 6% were battery electric or plug-in hybrid vehicles.

On the other hand, the infrastructure does not seem to keep pace with this development. According to the European Alternative Fuels Observatory, in 2018, there were only 4 public charging points per plug-in electric vehicle in the Netherlands (EU average: 8).



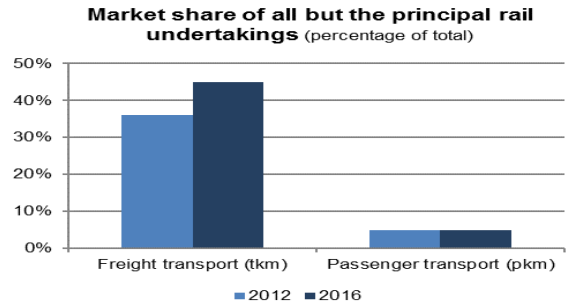

Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).

## Market opening in the railway sector

For passenger transport, *NS* (*Nederlandse Spoorwegen*) holds an exclusive concession for passenger transport on the main network. Regional passenger services are managed by the regional authorities.

Rail freight operations are 100% liberalised, and of the 21 rail freight companies[102] in operation in 2016, *DB Cargo* had the biggest market share (55 %).

Rail infrastructure and maintenance is financed by the Government and managed by *ProRail*, a company that is 100% owned by the state.

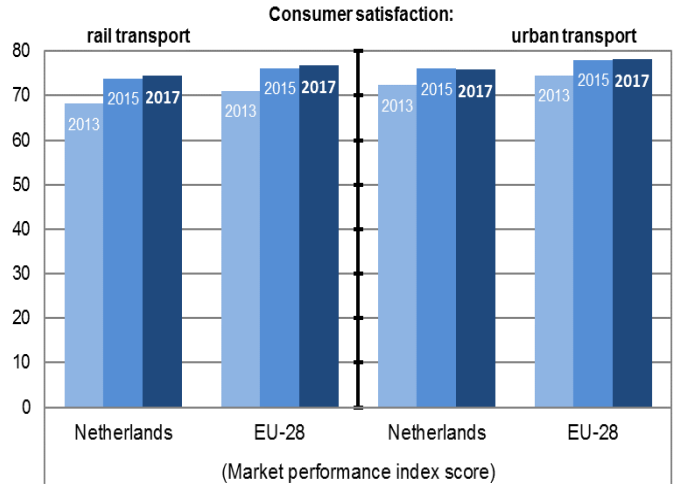



Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

[102] De ACM Spoormonitor 2016.

## Consumer satisfaction with public transport

Consumer satisfaction with public transport in the Netherlands has improved since 2013, but it is still slightly below the EU average.



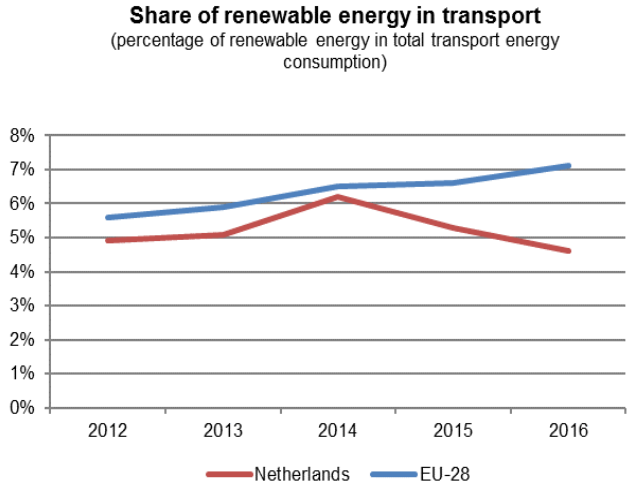

Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

Despite a sharp decrease of fossil fuels subsidies after 2013, the share of renewable energy in transport in the Netherlands is significantly below the EU average. Since 2014, the share even shows a decreasing trend, against the general upward trend in the EU.

Tax credits exist for biofuel and hydrogen related investments in renewables for transport.

Since inland waterways play an important role in the Dutch transport system, the greening of this mode represents a main policy challenge.




Source: Eurostat.

## Completion of TEN-T Core Network in the Netherlands

The completion of the TEN-T Core Network in the Netherlands appears to be well on track and for high speed rail it is even completed.

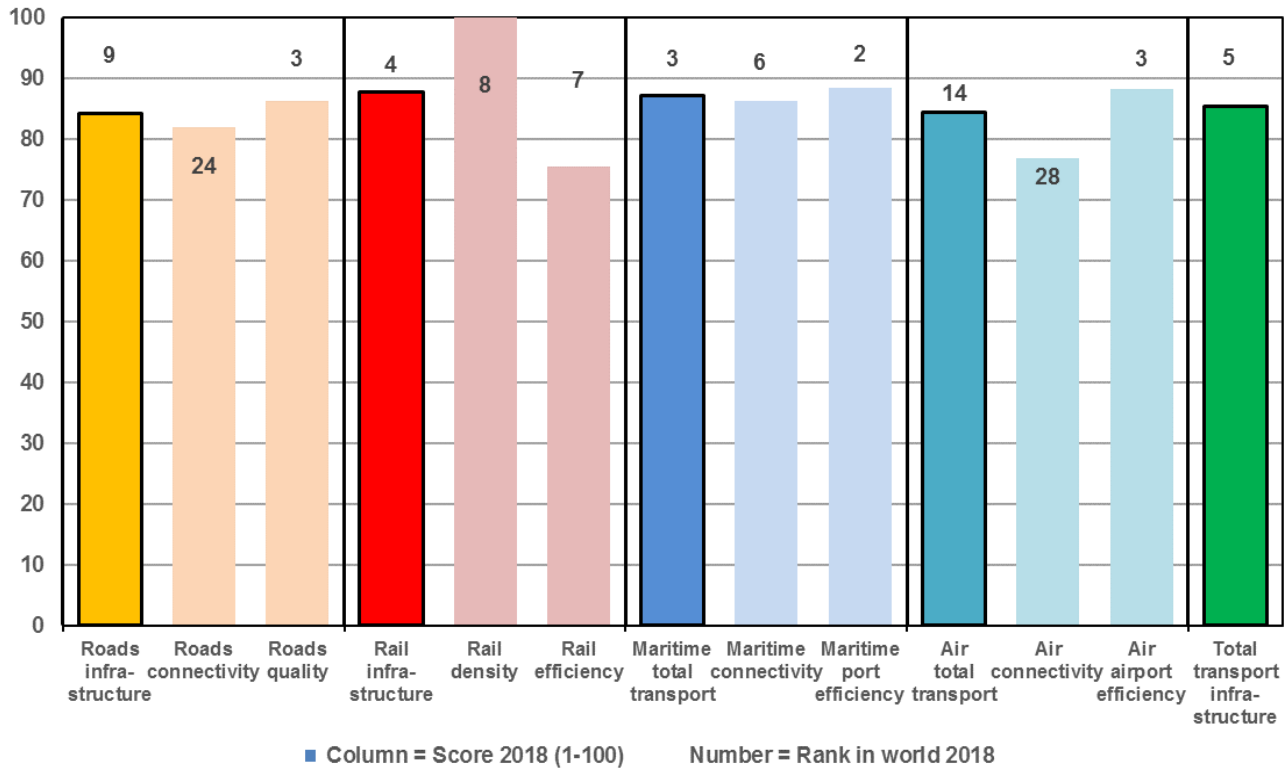
| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 96% | 84% | 100% | 97% |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in the Netherlands

The Netherlands invest a lot in the country's dense transport infrastructure network. Thus, despite congestion, the perceived quality of the infrastructure for all transport modes is very high, according to the World Economic Forum's Global Competitiveness Report 2018, both in absolute terms and in international comparison.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Austria

## Main current issues in Austria

### Issue 1 – Road safety

Austria's efforts to reach its self-defined goals in its "Transport Safety Programme 2011-2020"[103] are important. While the programme envisages halving the number of fatalities by 2020, this objective seems to be very challenging (25% reduction over the period 2010 – 2017).

Road safety and security applications represent one of the priority areas for action under the Directive on intelligent transport systems. Austria's implementation plan of the Directive so far includes fewer activities for this priority area than for others.

### Issue 2 – Competition in the passenger rail market

With the implementation of the 4th Railway Package, the introduction of competitive tendering of public service contracts should improve long-term competitive dynamics in public-service passenger transport. So far, public service contracts (around 70% of the passenger market) were attributed by direct award. Today at least nine competitors operate in this segment with reduced market shares and the incumbent maintains more than 90% market share in the public-service market. The largest competitor of the *ÖBB* in passenger commercial services, i.e. the remaining 30% non-PSO market, has more than 20% market share.

### Issue 3 – Navigability of the Danube

On inland waterways, the main issue is the promotion of inland navigation cross-border transport. Navigability issues of the Danube are also an issue, specifically prevention of risks associated with flooding and with episodes of low water levels.

### Issue 4 – Promoting alternative fuels

The share of cars with alternative fuelled engines is still lower than in many other EU countries. The number of plug-in charging points per plug-in electric vehicle corresponds to the EU average.[104] Despite Austria's efforts to reduce $CO_2$ emissions, transport fuel taxation is still comparatively low. There is still a possibility to use environmental taxes to encourage progress towards Europe 2020 targets and beyond. Incentives exist for electric vehicles, but could be more systematic for other alternative fuels.

[103] https://www.bmvit.gv.at/en/verkehr/roads/safety/publications/index.html

[104] European Alternative Fuels Observatory, 2018.

## Key facts and figures on transport in Austria

### Modal split

With 11.4% in 2016, Austria had the highest share of railways in the modal split for passenger transport among all EU countries (EU average: 7.6%). Railways also played an important role for freight transport in 2016 (28.4%). Thus, the modal split between road and rail appears to be more balanced for Austria than for the EU average.

Austria has a rather aggressive modal shift policy: while road freight transport is being made expensive through road tolls, rail freight transport benefits from a number of subsidies, e.g. to make combined transport more attractive, to support single wagonload traffic or transport of lorries on rail *(Rollende Landstraße)*.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| **Austria** | 72.6% | 9.6% | 11.4% | 6.5% |
| **EU-28** | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| **Austria** | 57.7% | 28.4% | 2.6% | 11.3% |
| **EU-28** | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the World Bank, the logistics sector in Austria is among the best performing in the world. After a slump in 2014, it has worked its way up to the top 4 of the World Bank's ranking of the LPI in 2018. This is mostly because of the Austrian logistics sector's efficiency regarding tracking and tracing and the high scores on infrastructure and timeliness. The skills and competences in the Austrian logistics sector also rank highly in international comparison.

World Bank Logistics performance indicator

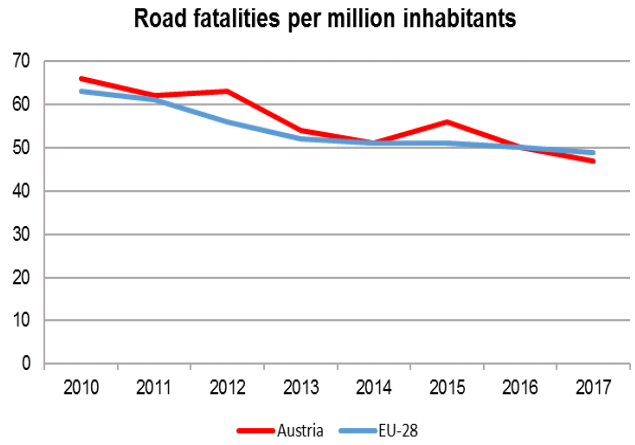
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| **LPI Rank** | **22** | **7** | **4** |
| Score | 3.65 | 4.1 | 4.03 |
| **Customs** | **23** | **15** | **12** |
| Score | 3.53 | 3.79 | 3.71 |
| **Infrastructure** | **25** | **12** | **5** |
| Score | 3.64 | 4.08 | 4.18 |
| **International shipments** | **40** | **9** | **3** |
| Score | 3.26 | 3.85 | 3.88 |
| **Logistics competence** | **26** | **4** | **6** |
| Score | 3.56 | 4.18 | 4.08 |
| **Tracking & tracing** | **10** | **2** | **7** |
| Score | 3.93 | 4.36 | 4.09 |
| **Timeliness** | **23** | **7** | **12** |
| Score | 4.04 | 4.37 | 4.25 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Austria is close to the EU average on fatalities per million inhabitants. However, the share of fatalities among motorcyclists is one of the highest in the EU (20% compared to the EU average of 15%).

The main causes of accidents remain driving without care and attention and non-respect of speed limits. Three quarters of Austrian road accidents resulting in fatalities occur in rural areas.

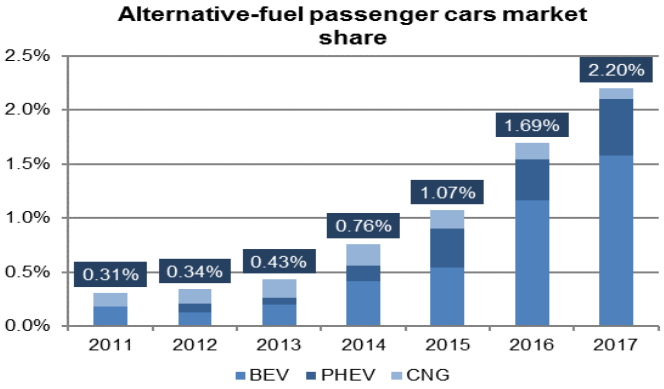



Source: DG MOVE - CARE data.

## Alternative fuels in road transport

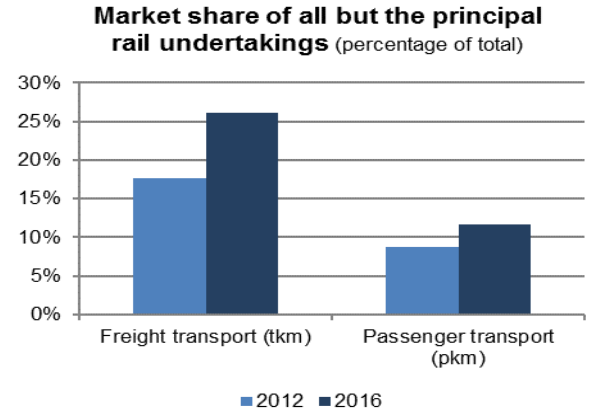
The overall share of passenger cars running on alternative fuels is low. However, the market share of new passenger cars using alternative fuels is growing very dynamically. In Austria, electric vehicles are exempt from vehicle tax.

Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).




## Market opening in the railway sector

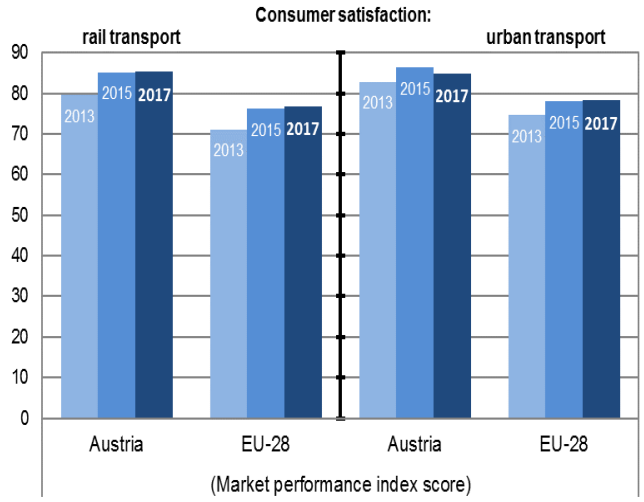
The rail freight market has opened up for competition to a bigger extent than the passenger sector, as the market share for all but the principal freight rail undertaking reached 26% in 2016, while on the passenger side it was 11%. For the freight sector, this degree of market opening is modest compared to other EU countries. However, market opening has improved in the Austrian rail sector. In 2010, the market shares of all but the principal railway undertaking were 15% for freight and 5% for passenger transport.




Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

Consumer satisfaction with public transport in Austria is one of the highest in the EU and has increased from 2013 to 2017.

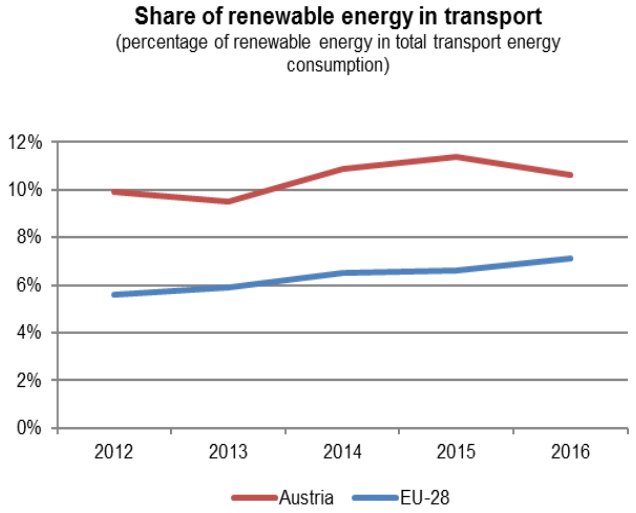



Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

Among the EU countries, Austria has one of the highest shares of renewable energy used in transport (10.6% in 2016).

In Austria, the main support scheme for renewable energy sources used in transport is a quota system. This scheme obliges companies importing or producing petrol or diesel to ensure that biofuels make up a defined percentage of their annual fuel sales. Furthermore, biofuels are supported through a fiscal regulation mechanism. Moreover, the scheme `klimaaktiv mobil` supports, amongst other things, the conversion to alternative drive systems.




Source: Eurostat.

## Completion of TEN-T Core Network in Austria

With the exception of high speed rail, the completion of the TEN-T Core Network in Austria is well on track.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 97% | 72% | 37% | 100% |

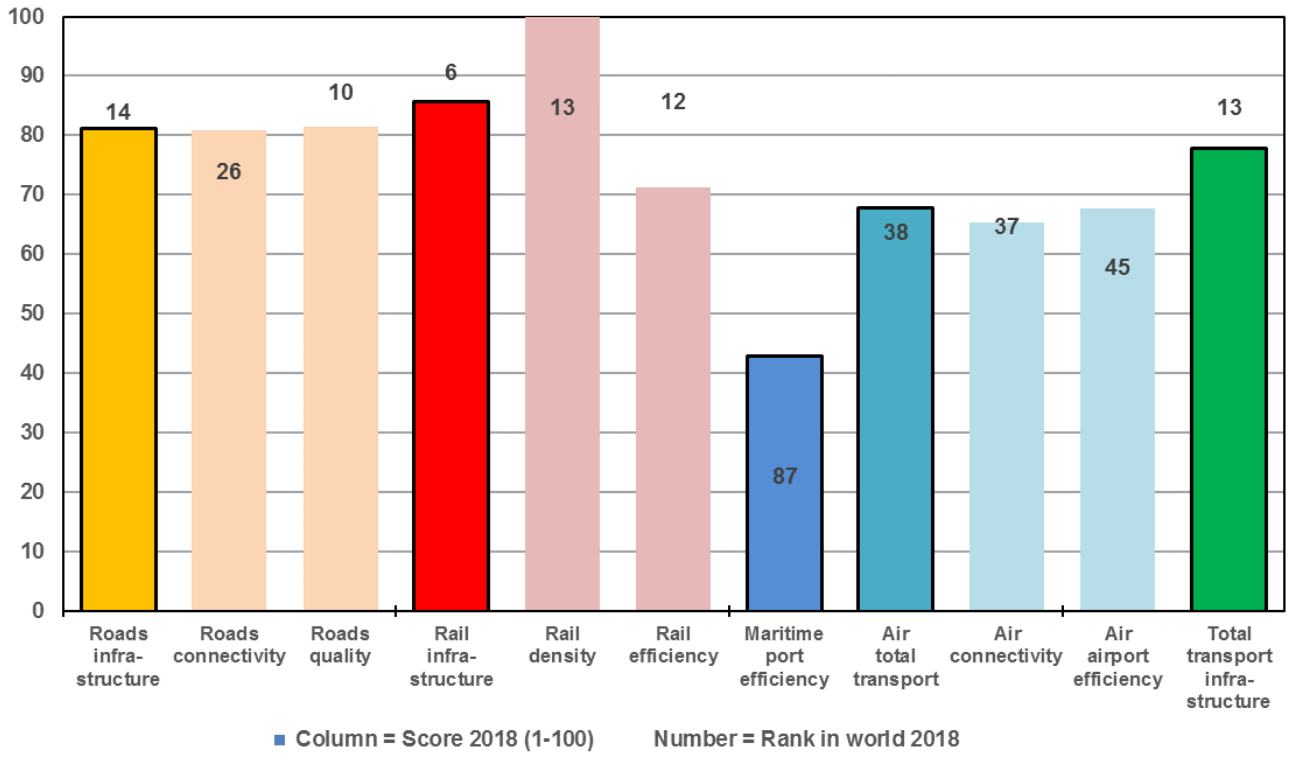
Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Austria

Austria ranks among the top European countries regarding the perception of its transport infrastructure. In particular, Austria has a very developed and efficient railway infrastructure.

There is room for improvement regarding air transport connectivity and airport efficiency. In March 2018, the federal administrative court has approved plans for a third runway at Vienna airport.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Poland

## Main current issues in Poland

### Issue 1 - Road safety

Despite recent improvements in terms of reduction of road fatalities, there is still a poor road safety record in Poland, in particular when it comes to vulnerable road users, such as pedestrians and cyclists. In cities, pedestrians and cyclists are disproportionately affected, as they account for around 50% and 12% of fatal victims of road accidents. Improvements could be brought by addressing driving habits as well as building adequate safety infrastructure.

### Issue 2 – Modernisation of the road network

The road network in Poland continues to improve, but the national road construction programme and its financial envelope are often subject to sudden changes putting into question the means invested in preparation of certain projects. In principle, the selection of programme priorities matches the growing traffic demand and European connectivity requirements, but the mobility needs of the northern regions remain only partly addressed.

### Issue 3 - Modernisation of the railway network

Despite an accelerated contracting rate of railway projects compared to preceding years, timely completion of all railway investments planned until 2023 may be still endangered. This is due to limited construction market capacity and institutional weaknesses of the railway infrastructure manager. Complex administrative and financial procedures are still affecting the railway sector in comparison to the road sector and contribute to delays and unnecessary bottlenecks of the projects.

### Issue 4 - Connectivity and multimodality

The Polish transport infrastructure exhibits connectivity gaps, especially in rail TEN-T, and poor environmental and safety standards. Significant investment needs are identified to develop a sustainable intermodal mobility, including TEN-T and cross-border links, and in particular to eliminate gaps in TEN-T networks, especially rail, and support shift from road to rail/inland navigation, to upgrade regional transport networks to TEN-T standards, to improve accessibility of peripheral, rural and cross-border areas by public transport, and to further reduce environmental impact and improve safety of transport.

### Issue 5 – High emissions from transport

Transport emissions of greenhouse gas and air pollutants remain above the EU average. Poor emission standards of registered passenger vehicles, high dependence on private cars, low renewal rate of passenger and commercial road vehicles and high share of road transport in freight shipments contribute to this phenomenon. [105] The share of alternative-fuel vehicles in total fleet places the country at the bottom of the rank.[106] In cities, the levels of traffic congestion and pollution are among the highest in the EU.

---

[105] European Environmental Agency: https://www.eea.europa.eu/data-and-maps/indicators/exceedances-of-air-quality-objectives-7/assessment.

[106] European Alternative Fuels Observatory: https://www.eafo.eu.

## Key facts and figures on transport in Poland

### Modal split

In 2016, cars were the predominant passenger transport mode in Poland, but their share in passenger transport remained below the EU average. At the same time, passengers in Poland are relying to a much greater extent on buses and coaches as a transport mode than the EU average. The share of railways for passenger traffic has been in general falling in the past decade and in 2016 was slightly below the EU average.

In freight transport, the share of road transport in Poland was below the EU average in 2016. Railways, despite a constant decrease in the modal share, continue to play an important role for freight transport in 2016 and are above the EU average. Thus, the modal split between road and rail appears more balanced for Poland than for the EU average.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Poland | 77.2% | 13.9% | 7.3% | 1.6% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Poland | 67.9% | 22.3% | 0.0% | 9.8% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the World Bank, the logistics sector in Poland shows a relatively constant performance. Its international ranking has improved in 2018, compared to the previous two editions of the LPI. In particular for international shipments and logistics competence, the competitiveness of the Polish logistics sector seems to have improved.

World Bank Logistics performance indicator

| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 31 | 33 | 28 |
| Score | 3.49 | 3.43 | 3.54 |
| Customs | 32 | 33 | 33 |
| Score | 3.26 | 3.27 | 3.25 |
| Infrastructure | 46 | 45 | 35 |
| Score | 3.08 | 3.17 | 3.21 |
| International shipments | 24 | 33 | 12 |
| Score | 3.46 | 3.44 | 3.68 |
| Logistics competence | 33 | 31 | 29 |
| Score | 3.47 | 3.39 | 3.58 |
| Tracking & tracing | 27 | 37 | 31 |
| Score | 3.54 | 3.46 | 3.51 |
| Timeliness | 15 | 37 | 23 |
| Score | 4.13 | 3.8 | 3.95 |

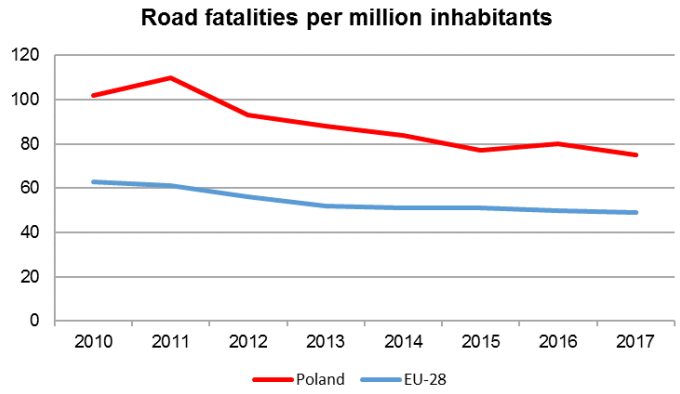
Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

In terms of road fatalities, per million inhabitants Poland (75 in 2017) is significantly above the EU average (49 in 2017). The same pattern is observed per passenger-kilometre and per total number of passenger cars.

Compared to 2010 the situation has considerably improved, but Poland is still clearly lagging behind the EU average.

Inattentive driving and non-respect of speed limits remain among the main causes of accidents.

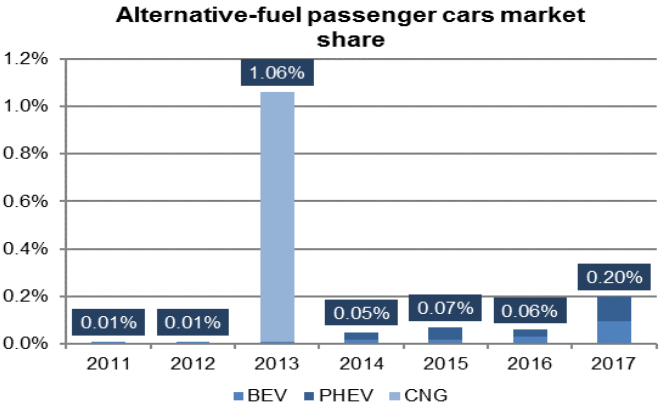



Source: DG MOVE - CARE data.

## Alternative fuels in road transport

Poland puts a lot of emphasis on the development of the market for electric and Compressed Natural Gas (CNG) cars. However, it is currently at a very early stage of its development. In view of the low numbers of plug-in electric vehicles (PEV) and CNG cars currently on the road, Poland has a sufficient network of public recharging and CNG refuelling points. However, the number of public charging points per PEV was below the EU average in 2018 (6 in Poland, 8 on average in the EU, European Alternative Fuels Observatory 2018).

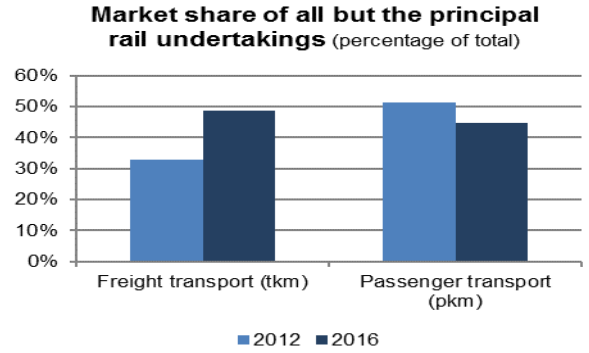
Beyond 2020, Poland defined a very ambitious target of reaching more than 1 million PEVs on the road by 2025. The support measures defined in the national policy framework may not be sufficient to ensure target achievement, considering that the EV share in Poland is very low today.




Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).

## Market opening in the railway sector

The liberalisation process in the Polish rail market started with the Railway Transport Act in 1997 under which for the first time licensed operators were authorised to provide railway services on the Polish network. In addition, the Act provided for the obligation of separate accounting of railway and infrastructure operations.

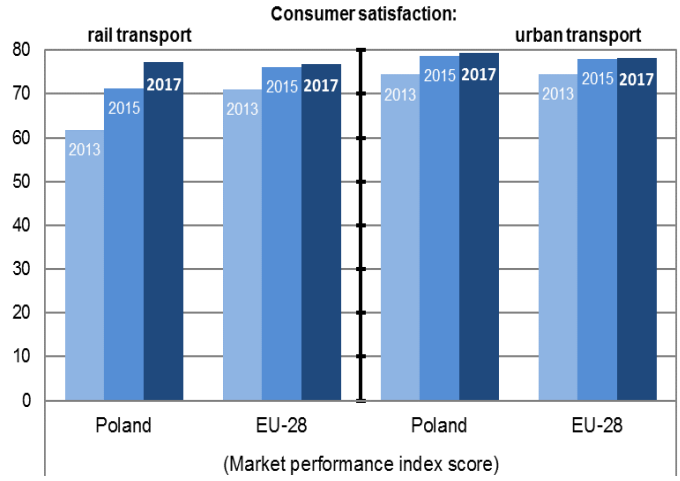



Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

The consumer satisfaction with rail transport has reached a level above the EU average in 2017. It has improved a lot since 2013.

For urban transport, the consumer satisfaction in Poland corresponds to the EU average.

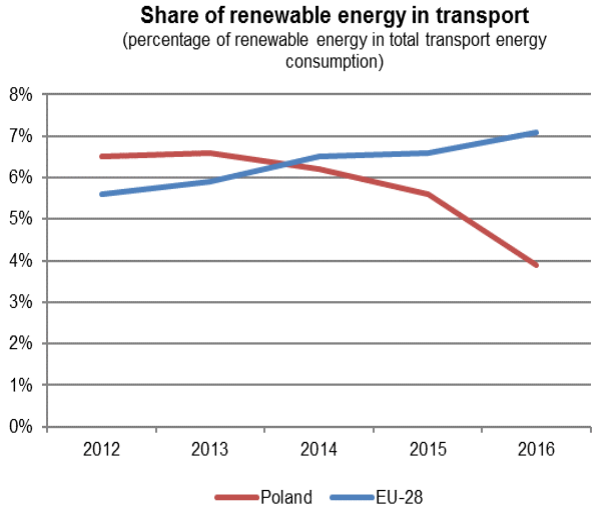



Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

The share of renewable energy in transport in Poland displays a rapidly decreasing trend since 2013 and is now significantly below the average in the EU.

The number of electric charging points in Poland grew from almost none to more than 300 over the period from 2013 to 2016. The largest increase was observed between 2014 and 2015.




Source: Eurostat.

## Completion of TEN-T Core Network in Poland

A big part of the work on the completion of the TEN-T Core Network in Poland is still to be done, in particular concerning the rail network.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 62% | 23% | 0% | 100% |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Poland

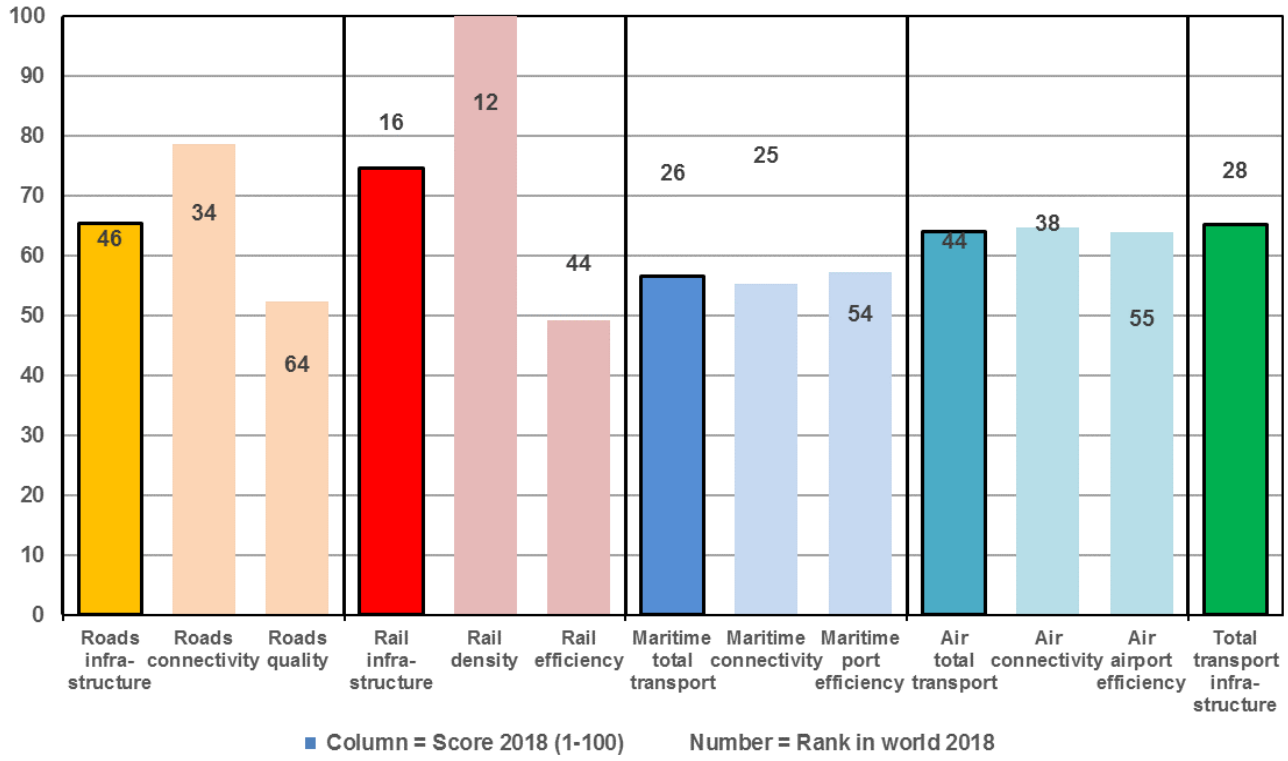
Poland still lacks a coherent network of motorways and expressways linking major cities and industrial areas. Furthermore, the pavement of a large part of the existing road network has not yet been adapted to the European standards for heavy load traffic. The poor and degrading condition of the railway network is causing dwindling competitiveness and impacting the quality of rail transport services.

Among rail infrastructure projects, priorities include the upgrading of the existing major rail links, elimination of bottlenecks and raising technical standards.

Inadequate infrastructure also hinders development of seaports and inland waterways.

Air transport infrastructure is relatively modern, but airports are in general poorly connected to the rail and road networks.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Portugal

## Main current issues in Portugal

### Issue 1 - Renegotiations of port concessions

The Portuguese authorities committed to launch the renegotiation of port concessions with the relevant operators. The new port operation concessions should ensure that "(i) efficiency gains and cost-savings are passed on to port customers; and (ii) minimum performance criteria are respected in order to foster competition in the sector".

The Leixões port concession has been renegotiated, yielding positive results in terms of port user charges and further investment in the port. The renegotiation of the Sines port concession was not successful. Renegotiations of the main remaining port concessions are not yet concluded.

### Issue 2 - Reform of port labour

Portugal reformed its port labour law in 2013 which caused a wave of protests. Port charges went down and port throughput increased significantly.

Recently, on-going reforms in neighbouring Spain have failed to show any effects on the ground, due to strong resistance from the trade unions. In this context, port unions in Portugal renewed their protests and expressed solidarity with unions in Spain in the summer of 2017.

Developments in the Spanish port labour market might have repercussions in Portugal and endanger the acquis of the 2013 reforms.

### Issue 3 - Railway interoperability and investments

The most necessary investments in the railway infrastructure are already under way, but installed capacity is not being used to its full potential. Portugal is completing the East-West international connections of the Atlantic Corridor with the missing link of the Sines/Lisbon-Madrid and Aveiro-Salamanca lines under construction. This is being done in the context of the Connecting Europe Facility.

However, railway interoperability with Spain is still an issue, owing to a lack of harmonisation in the height and width of railway vehicles. A bigger coordination effort in this area would help deliver the potential of the Atlantic Corridor.

The priorities for the interoperability are:

1. Harmonisation with ERTMS;

2. Full electrification (at the Portuguese and EU standard – 25kV) of the international connections;

3. Adaptation of sidings for the circulation of 740m-long trains (for freight transport).

The Atlantic Corridor already foresees (as the other Core Network Corridors) a multilevel governance involving infrastructure managers, ministerial representation, regions, port authorities, etc. Another important coordination mechanism and transport operation enabler is the Atlantic Rail Freight Corridor, in which Portugal takes part.

The additional coordination mechanism that can deliver is the joint working group consisting of Spain-Portugal on the interoperability of the Iberian Peninsula. This group should deliver a strategic plan on future transition to UIC gauge in the Iberian Peninsula and deployment of ERTMS – it is crucial to confirm the full compatibility of ES-PT ERTMS-ETCS systems.

## Key facts and figures on transport in Portugal

### Modal split

Portugal records a high use of passenger cars and in 2015 car trips represented more than 88% of the passenger-kilometres travelled, above the EU average. On the other hand, Portugal records a lower use of buses and coaches and railways than the EU average.

For land freight transport, the road transport covers the largest share of freight transport activity, about 84% of all tonne-kilometres driven. In addition Portugal has a lower share of rail and inland waterway transport than the EU average, with no transport at all via inland waterways.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Portugal | 88.2% | 6.6% | 4.2% | 1.0% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Portugal | 83.8% | 14.2% | 0.0% | 2.0% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the World Bank, the logistics sector in Portugal is an average performer in the world, mostly penalised by poor infrastructure and inefficient customs handling.

However, the overall performance of the sector has improved a lot in 2018, compared to the two previous editions of the LPI. In particular for international shipments, Portugal is now among the top ten performers in the world.

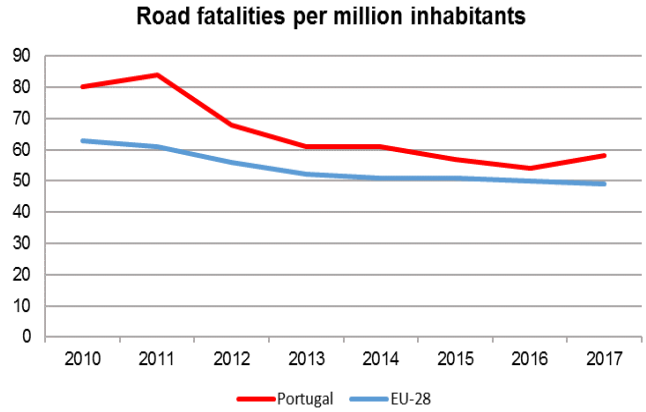
World Bank Logistics performance indicator

| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 26 | 36 | 23 |
| Score | 3.56 | 3.41 | 3.64 |
| Customs | 31 | 30 | 35 |
| Score | 3.26 | 3.37 | 3.17 |
| Infrastructure | 31 | 49 | 32 |
| Score | 3.37 | 3.09 | 3.25 |
| International shipments | 29 | 47 | 7 |
| Score | 3.43 | 3.24 | 3.83 |
| Logistics competence | 20 | 47 | 22 |
| Score | 3.71 | 3.15 | 3.71 |
| Tracking & tracing | 20 | 29 | 23 |
| Score | 3.71 | 3.65 | 3.72 |
| Timeliness | 35 | 27 | 18 |
| Score | 3.87 | 3.95 | 4.13 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Road fatalities have decreased significantly, although this trend has slowed down in both Portugal and the EU overall since 2013. In 2017, there were 58 road fatalities per million inhabitants in Portugal, compared to 49 for the EU average.



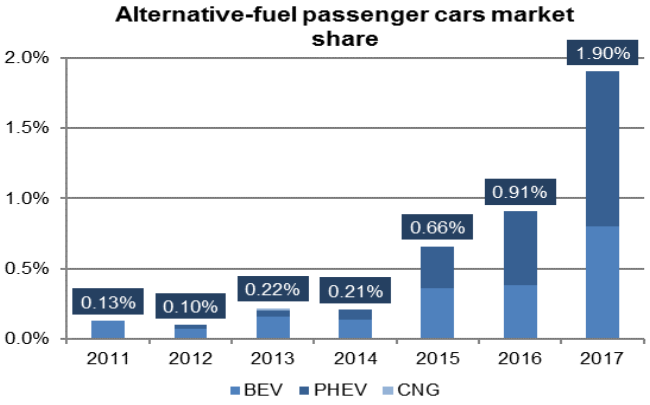

Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The number of electric charging points in Portugal has increased steadily over the period from 2013 to 2018. According to the European Alternative Fuels Observatory, in 2018, there were 10 public charging points per plug-in electric vehicle (EU average: 8).

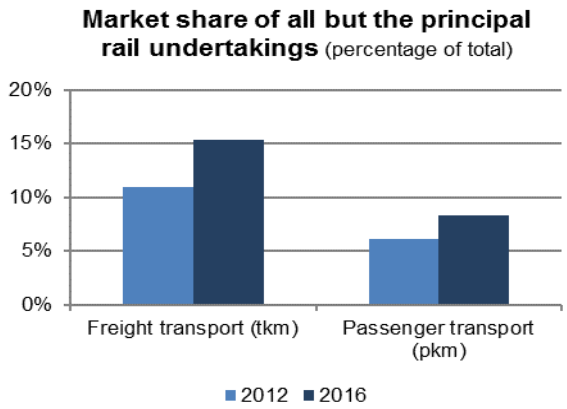
The number of alternative-fuelled cars is increasing: the share of new passenger cars using alternative fuels has increased more than ten times over the period between 2011 and 2017.

Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).




## Market opening in the railway sector

The rail freight market has opened up for competition to a greater extent than the passenger sector, as the market share for all but the principal freight rail undertakings reached 15.4% in 2015, while on the passenger side it was 8.3%.

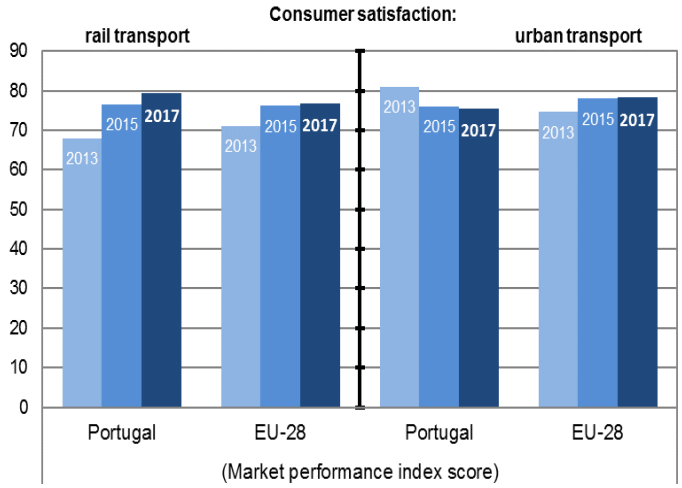



Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

The consumer satisfaction in Portugal with rail transport has improved since 2013 and was above the EU average in 2015 and in 2017.

Over the same time span, the consumer satisfaction with urban transport has deteriorated, against the general trend at EU level.

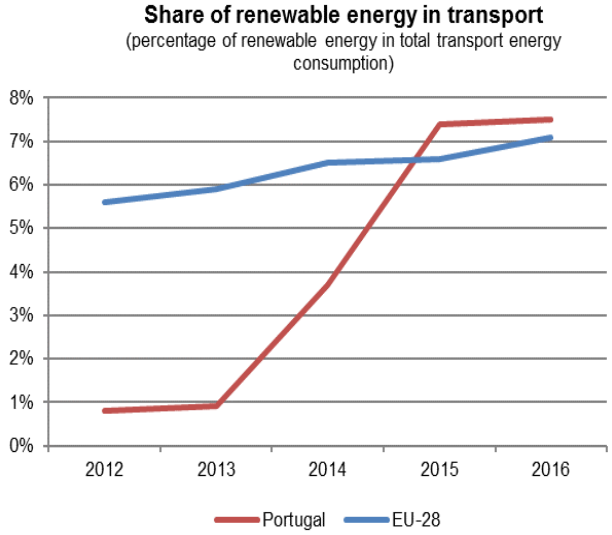



Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

The share of renewable energy in transport has been increasing quite fast and overtook the EU average in 2015. It seems to have stabilised at this level.

In Portugal, there are two support schemes for the use of renewable energy sources in the transport sector: a tax exemption for small producers of biofuels (PPDs) and a biofuel quota for companies supplying fuels for consumption in the market.




Source: Eurostat.

## Completion of TEN-T Core Network in Portugal

The completion of the TEN-T Core Network in Portugal is already very advanced in general. The high speed rail network is still not developed at all.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 100% | 95% | 0% | 24% |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Portugal

The overall quality of the transport infrastructure in Portugal is relatively high.

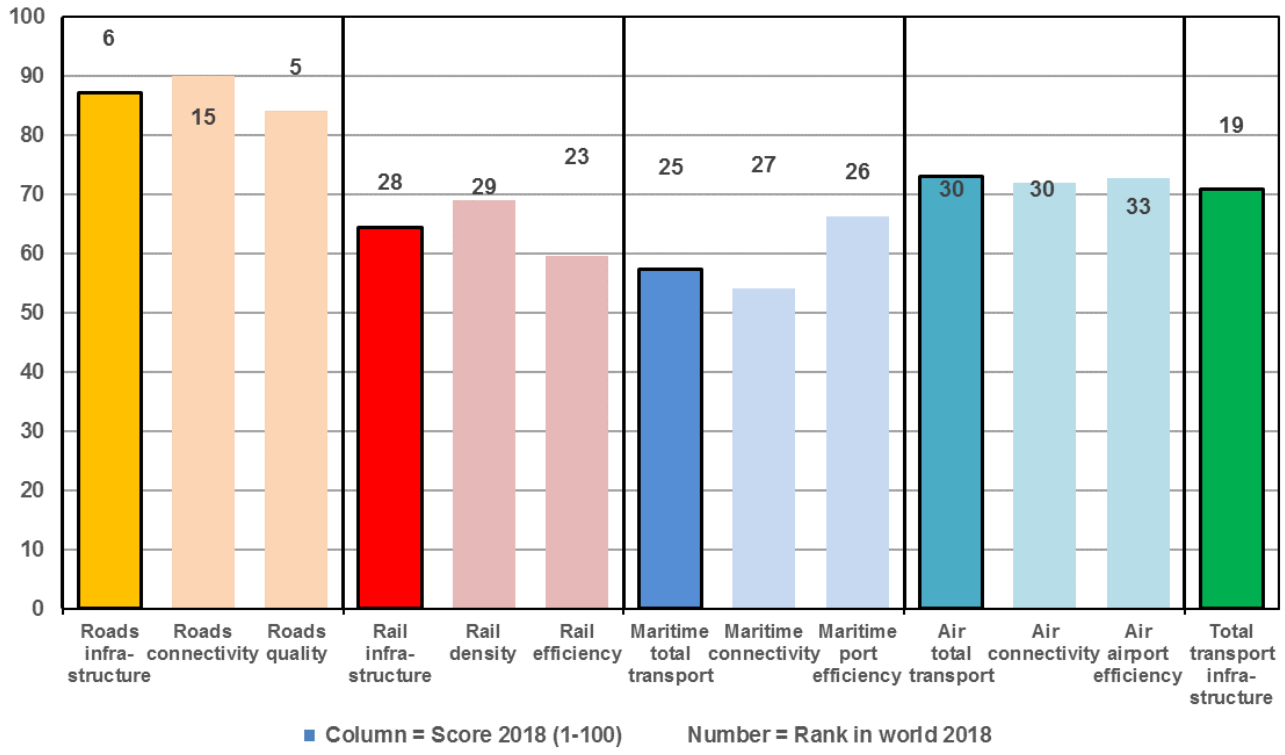
The quality of the road infrastructure is very good, even though in the aftermath of the financial crisis, public infrastructure funding has been limited.

Portugal has not invested significantly in the development of rail infrastructure. Preference was given to the development of the road network, which absorbed most structural and cohesion funds. Rail investments have been limited to the maintenance of the existing network.

Hinterland connections to and from main seaports represent a bottleneck problem.

There is an untapped potential for Portuguese airports, where the quality and efficiency of airport services could be enhanced.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Romania

## Main current issues in Romania

### Issue 1 – Transport infrastructure

The general condition and reliability of road and rail infrastructure remains poor. Despite substantial investments, the state of the road infrastructure remains precarious. Motorways and national roads account for slightly more than 20% of the road network, while some 90 % of national roads have only one traffic lane in each direction. This is detrimental to delivery times and road safety. Heavy underinvestment in maintenance has reduced train speed and affected rail freight delivery times.[107] The poor state of the infrastructure affects the efficiency with which Romania can ship its goods and connect producers with consumers compared to its main trading partners.

Preparation, development and implementation of major infrastructure projects are lagging behind and have been subject of a country-specific recommendation in the European Semester 2018. A realistic and mature project pipeline that can improve the quality and quantity of infrastructure, complete the multimodal corridor and efficiently use the EUR 6.3 billion[108] available for the 2014-2020 period is still needed. The projects currently implemented under the 2014-2020 programmes are those prepared but not completed during the previous programming period. Romania risks losing part of the EU funds earmarked for transport.

### Issue 2 – Reform of the transport sector

The Romanian Government adopted in September 2016 a national transport master plan, which is a precondition for accessing 2014-2020 European Structural and Investment Funds. However, the plan only gives a general picture of the priority projects and their readiness. To speed up investment in road infrastructure, the management of infrastructure investments was split from the authority in charge of infrastructure administration. The transport master plan and the accompanying railway reform provide the necessary strategic framework for investments, but implementation remains slow.

The railway network needs to become financially viable but reform of the railway sector is lagging behind. The rail reform agency is not fully operational and the socioeconomic analysis of the rail network still needs to be finalised. In 2017, the market for train services was ranked very poorly by Romanian consumers and scored significantly worse than in 2015.[109]

### Issue 3 – Road safety

The road network in Romania includes few bypasses, with main roads passing through many villages and towns. The high growth in vehicle fleet and the slow road infrastructure development has led to an alarming increase in the number of accidents. Romania is one of the poorest performers in road safety in the EU. The fatality rate is especially high in built-up areas and trends are particularly worrying as regards pedestrians. Important factors are excessive speed and mixed traffic (several road user groups sharing the road). The road fatalities have however decreased from 117 fatalities per million inhabitants in 2010 to 99 in 2017.

---

[107] OECD (2016), OECD Competition Assessment Reviews: Romania, OECD Publishing, Paris: http://www.oecd-ilibrary.org/finance-and-investment/oecd-competition-assessment-reviews-romania_9789264257450-en.

[108] From the European Structural and Investment Funds and the Connecting Europe Facility.

[109] European Commission (2018b), Consumer Market Scoreboard 2018 edition, forthcoming.

## Key facts and figures on transport in Romania

### Modal split

Although below EU average, Romania records a high use of passengers cars that amounted to 75% of the passenger-kilometres travelled in 2016. The use of buses and coaches and of tram and metro is higher than the EU average, while rail passenger transport is below the EU average.

For land freight transport, road transport covers the largest share of freight transport activity, but is considerably below the EU average. Romania has a substantially higher share of rail and inland waterways (five times more) than the EU average.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Romania | 75.0% | 14.7% | 3.9% | 6.4% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Romania | 39.3% | 29.5% | 28.7% | 2.5% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the World Bank, the logistics sector in Romania ranks 48th in the international comparison of the LPI in 2018. It registered a particularly low score for customs handling and infrastructure.

A positive sign is that the score and ranking for infrastructure seem to improve slowly over time.

World Bank Logistics performance indicator

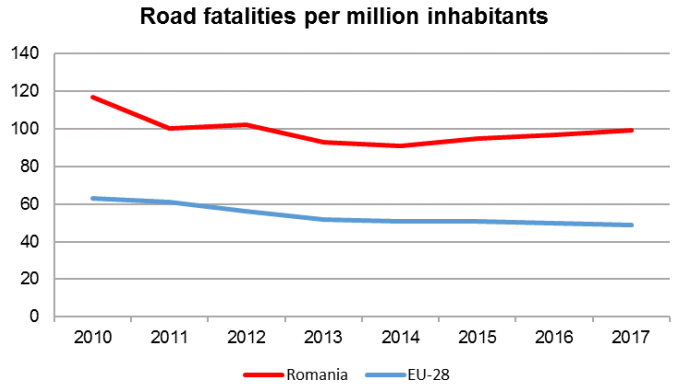
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 40 | 60 | 48 |
| Score | 3.26 | 2.99 | 3.12 |
| Customs | 59 | 50 | 80 |
| Score | 2.83 | 3.00 | 2.58 |
| Infrastructure | 64 | 58 | 51 |
| Score | 2.77 | 2.88 | 2.91 |
| International shipments | 36 | 57 | 48 |
| Score | 3.32 | 3.06 | 3.18 |
| Logistics competence | 43 | 67 | 47 |
| Score | 3.2 | 2.82 | 3.07 |
| Tracking & tracing | 34 | 64 | 41 |
| Score | 3.39 | 2.95 | 3.26 |
| Timeliness | 27 | 81 | 39 |
| Score | 4 | 3.22 | 3.68 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Romania is one of the poorest performers in road safety in the EU. The share of pedestrian fatalities is one of the highest (38% compared to 21 % on average in the EU).

Important factors are excessive speed and mixed traffic (several road user groups sharing the road). Furthermore, traffic-calming measures and separate paths for vulnerable road users (e.g. sidewalks) are reportedly not sufficiently developed or missing completely. However, road fatalities have decreased from 117 fatalities per million inhabitants in 2010 to 99 in 2017. Improvements are due e.g. to the on-going construction of a modern motorway network connecting all the larger cities.



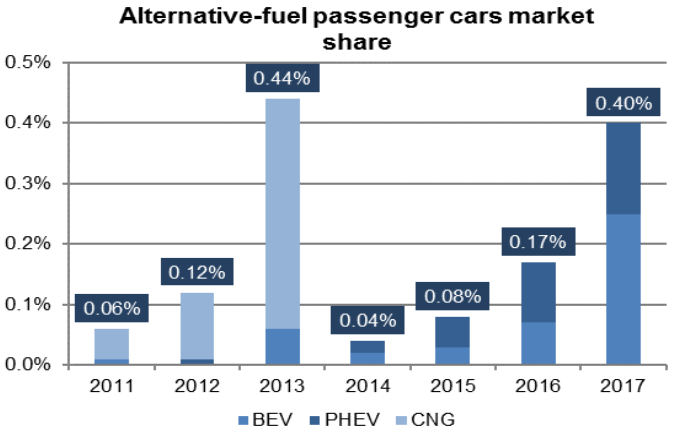

Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The share of electric cars in total sales on the Romanian market is very small. CNG fuelled cars had looked slightly more promising in the past, but does not seem to be sold anymore.

According to the European Alternative Fuels Observatory, the number of charging points per plug-in electric vehicle in Romania has increased from 5 in 2014 to 13 in 2018 (EU average in 2018: 8).

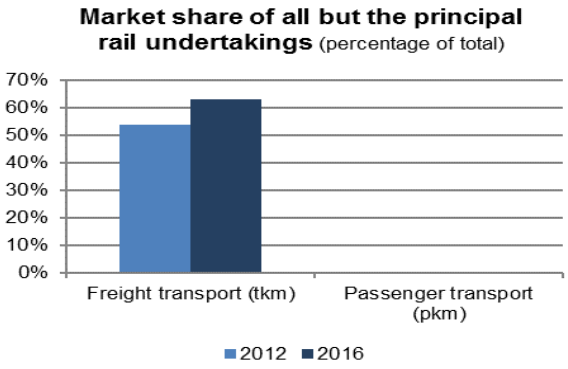
Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).




## Market opening in the railway sector

The administrative capacity of the Romanian Railway Reform Authority (*AFER*), established in 2016, and of state railway infrastructure manager *CFR SA* remains insufficient, notably with regard to the management of public tenders, and the planning, coordination and supervision of infrastructure projects.

The passenger rail sector remains dominated by a few players: the railway infrastructure manager, *CFR SA* and the main operator of rail passenger transport, *CFR Calatori SA*. In 2014, the market share of all but the main rail passenger undertaking was 9.1 % (no data available for 2016).



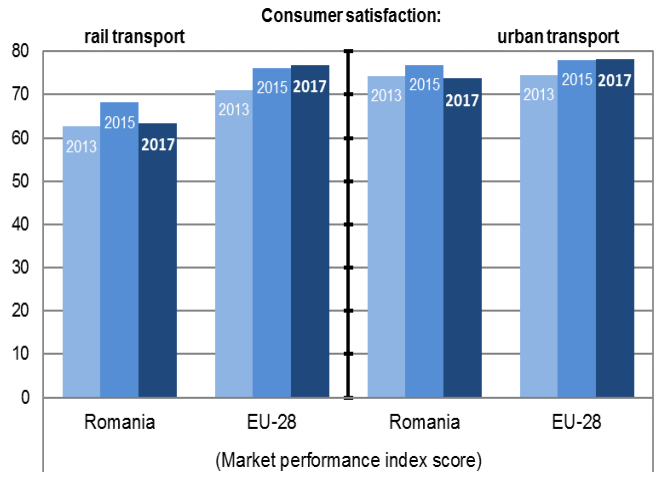

Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction

Consumer satisfaction with rail transport has increased in Romania between 2013 and 2015, but dropped again in 2017. It remained below the EU average.

A special Eurobarometer Survey in 2018 on the satisfaction with rail passenger services (Flash Eurobarometer 463) has revealed that in Romania passengers' satisfaction with complaint handling and with accessibility for passengers with reduced mobility has worsened since 2013.

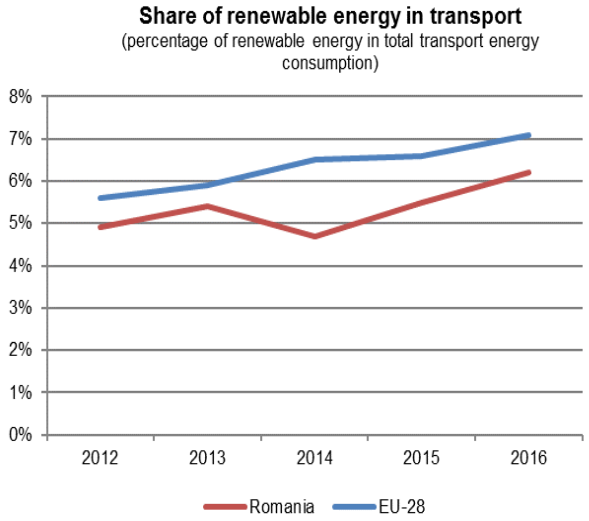
For urban transport, consumer satisfaction in Romania corresponds by and large to the EU average, although it has also dipped in 2017.




Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

The current level of renewables in transport is below EU average, but displays an increasing trend since 2014.




Source: Eurostat.

## Completion of TEN-T Core Network in Romania

In Romania, only for inland waterways the TEN-T Core Network is almost complete. In particular, the rail network needs to be further developed.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 45% | 4% | 0% | 91% |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Romania

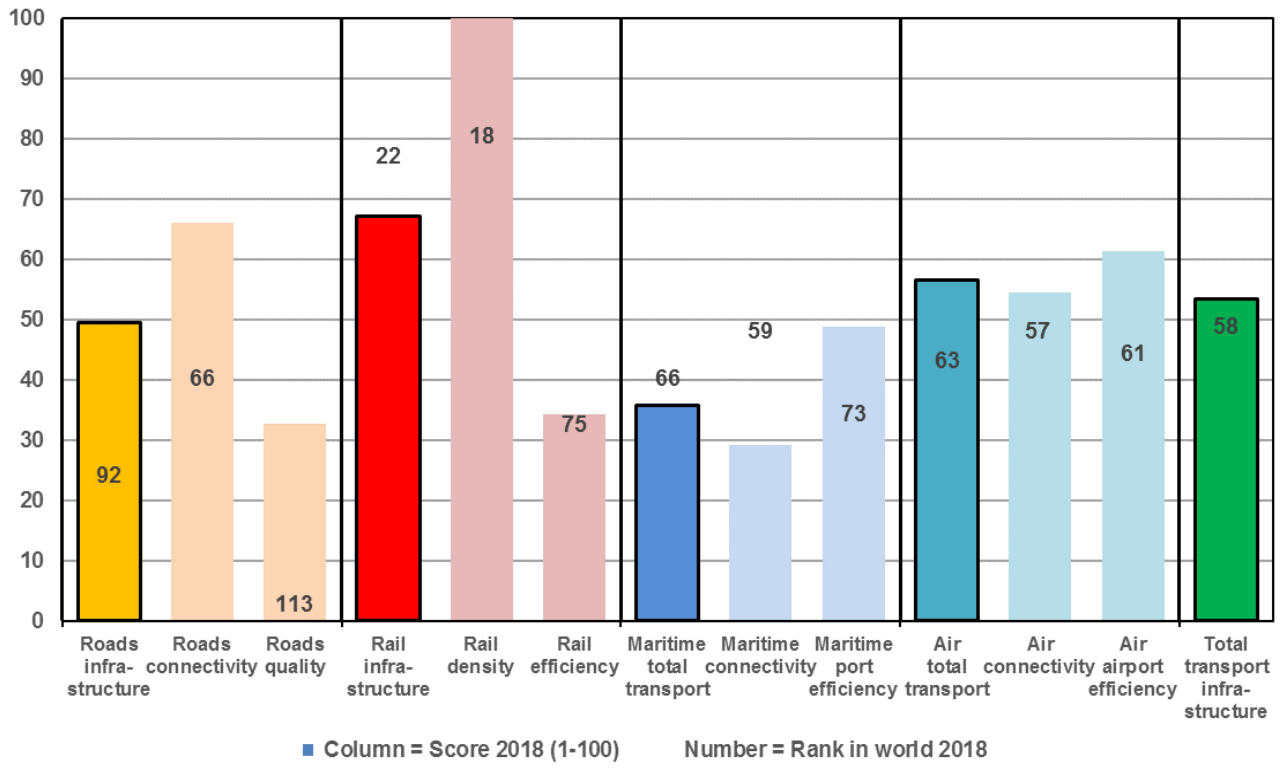
Romania places itself low in the transport infrastructure quality ranking of the Global Competitiveness Report 2018 and lowest among all EU countries for road infrastructure quality.

Despite a relatively high investment level as a share of GDP, the barriers to investment hamper rapid improvements in infrastructure. Romania has the lowest density of motorways in the EU (2016), whilst the rail network is "in an advanced state of disrepair due to a chronic lack of maintenance", "very inefficient" and continues to deteriorate (European Parliament 2015, 'Romania's general transport master plan and rail system').

For railway infrastructure, the situation in 2018 in Romania is ambivalent. Whilst the country performs well in terms of railroad density, the efficiency of train services is very low.

There is room for improvement in the development of maritime transport infrastructure in Romania.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Slovenia

## Main current issues in Slovenia

### Issue 1 - Investment in transport infrastructure

The investments in rail infrastructure have recently increased in Slovenia. However, more efforts will be needed to address the investment backlog in rail infrastructure which dates back several decades. In this context, the transport development strategy adopted in July 2015 and the national programme of development of transport until 2030 adopted in November 2017, are important steps and represent a comprehensive basis for developing the transport sector over the coming decades. The national programme envisages EUR 9 billion in infrastructure investments for the period 2016-2022, and a further EUR 7.9 billion to be invested by 2030.

The main obstacle to efficient maritime transport is the lack of modernisation of infrastructure and the insufficient inter-modality between maritime and rail transport. As such, it will be important to increase the capacity of the container terminal and upgrade the remaining infrastructure and equipment of the port of Koper and construct the second track on the Divača–Koper railway line.

The main focus of investments in the past was on the motorway network. However, the state road network infrastructure remained under-financed, both in terms of quality (state of roads deteriorating and in an urgent need of maintenance) and connections (especially those to border regions which are lagging behind), while the traffic steadily rose.

### Issue 2 – Competition in the rail market

No significant competition is present in neither the freight nor the passenger sectors of the Slovenian rail market. The freight market is predominantly in the hands of a state-owned company and there is no separation between the infrastructure manager and the transport operator. The infrastructure manager and the transport operator are operating under one single railway holding, which is continuously producing deficits. Besides the need for modernising railway infrastructure, it will be important to improve the performance of rail services, also in view of enhancing multimodality. The possibilities offered by EU funds, in particular the Regional Fund and the Cohesion Fund, as well as the Connecting Europe Facility, could be better used to address these issues.

### Issue 3 - Sustainable mobility

The relatively high number of cars and large volume of traffic transiting through Slovenia result in a serious problem of congestion on the motorways and contributes to the high energy and carbon intensity of the country's transport sector. The transition to more sustainable mobility is therefore inevitable, and will be promoted by various measures. Examples include promoting integrated public passenger transport, developing comprehensive strategies on urban mobility, incentives for electric recharging infrastructure, additional measures in terms of environmental taxation of vehicles and further work on a more refined application of the user- and polluter-pay principles on the motorway network.

## Key facts and figures on transport in Slovenia

### Modal split

Slovenia records a high use of passenger cars, and car trips represented more than 86% of all passenger-kilometres travelled, which is five percentage points above the EU average. However, in rail passenger transport Slovenia is well below the EU average.

For land freight transport, the road transport covers the largest share of activity (two thirds) which is below the EU average. On the other hand, the rail freight transport represents an important share of one third, significantly above the EU average.

Modal split for passenger and freight transport in 2016

| | Modal split for passenger transport (shares based on passenger-kilometres) | | | |
|---|---|---|---|---|
| | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
| **Slovenia** | 86.3% | 11.8% | 2.0% | 0.0% |
| **EU-28** | 81.3% | 9.3% | 7.6% | 1.8% |

| | Modal split for freight transport (shares based on tonne-kilometres) | | | |
|---|---|---|---|---|
| | Road | Railways | Inland Waterways | Pipeline |
| **Slovenia** | 66.7% | 33.3% | 0.0% | 0.0% |
| **EU-28** | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the World Bank, the performance of Slovenia's logistics sector is ranked 35 among 160 countries analysed. Compared to the best performing in the region and in the world, Germany, it lags behind mainly in terms of international shipments and logistics competence. Still, compared to its own performance in 2010, it has improved on almost all the logistics sub-indicators of the World Bank Logistics performance indicator in 2018.

World Bank Logistics performance indicator

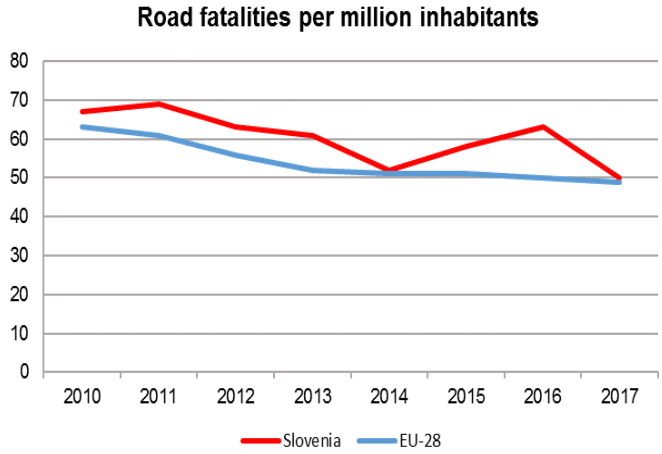
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| **LPI Rank** | **38** | **50** | **35** |
| Score | 3.38 | 3.18 | 3.31 |
| **Customs** | **41** | **53** | **24** |
| Score | 3.11 | 2.88 | 3.42 |
| **Infrastructure** | **32** | **43** | **31** |
| Score | 3.35 | 3.19 | 3.26 |
| **International shipments** | **57** | **53** | **47** |
| Score | 3.05 | 3.1 | 3.19 |
| **Logistics competence** | **30** | **44** | **50** |
| Score | 3.51 | 3.2 | 3.05 |
| **Tracking & tracing** | **28** | **46** | **40** |
| Score | 3.51 | 3.27 | 3.27 |
| **Timeliness** | **37** | **60** | **38** |
| Score | 3.82 | 3.47 | 3.7 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Road fatalities peaked at 146 killed per million inhabitants in 2007 and since then have decreased substantially. Between 2001 and 2010, Slovenia decreased fatalities by 50% (EU average 43%) and further reduced road deaths by 25% between 2010 and 2017 (EU average: 20%).

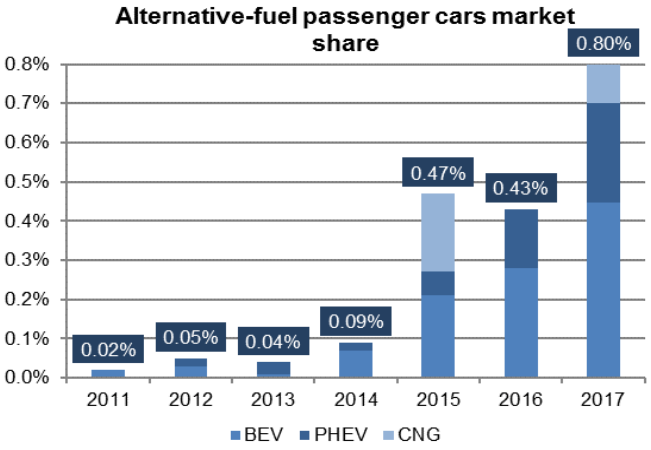
In 2017, 50 dead per million inhabitants were reported, which corresponds roughly to the EU average (49). Slovenia, being a small country, is susceptible to yearly fluctuations in road safety performance, and trends can only be observed on longer time series.




Source: DG MOVE - CARE data.

## Alternative fuels in road transport

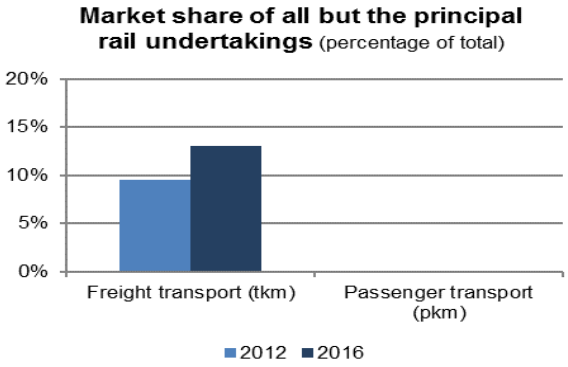
Slovenia puts emphasis on the development of the market for electric vehicles. It estimates a share of roughly 1% electric passenger cars on the road in 2020 and 16.9% in 2030. Measures are already in place or planned to reach these estimated shares (several tax exemptions and benefits, attractive incentives for purchase and for use of electric vehicles). According to the European Alternative Fuels Observatory, in 2018, Slovenia had 5 public charging points per plug-in electric vehicle (EU average: 8). CNG is considered to be the key alternative fuel for buses in the future.




Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).

## Market opening in the railway sector

No major competition is present in neither the freight nor the passenger sectors of the Slovenian rail market. The freight market is dominated by a state-owned company (88%) and there is no separation between infrastructure manager and transport operator. Awarding of public service contracts is still done via direct award. There are doubts about the administrative capacity of the regulator, although progress was made by merging the railway regulator with the independent regulator for communications.

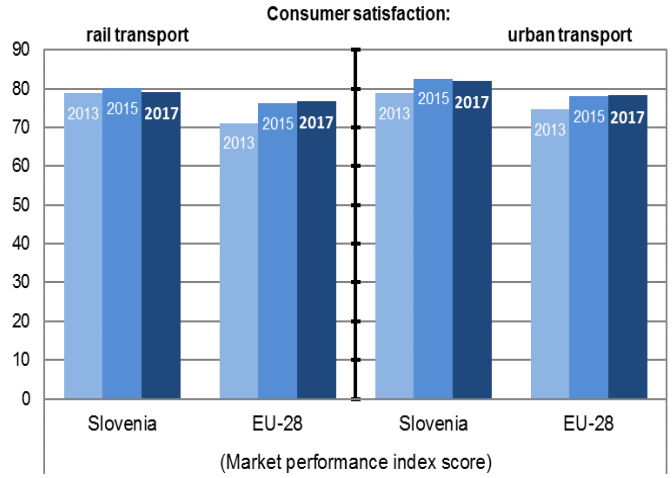



Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

The consumer satisfaction with public transport is high in Slovenia and significantly above the EU average.

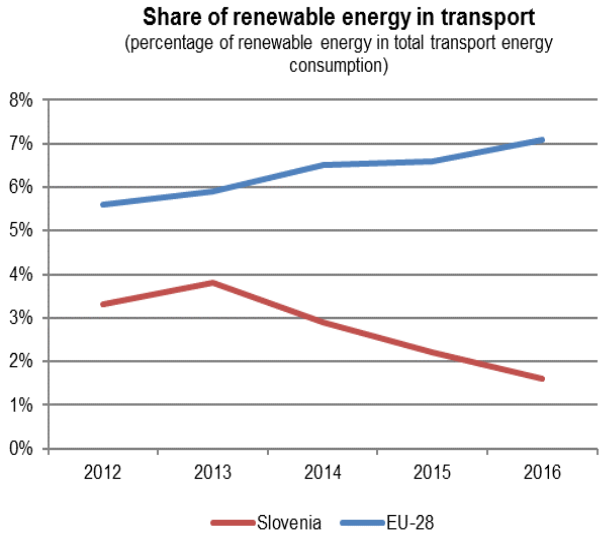
However, a special Eurobarometer survey in 2018 on the satisfaction with rail passenger services (Flash Eurobarometer 463) has shown that satisfaction with accessibility of rail services for passengers with reduced mobility is still below EU average.




Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

The share of renewable energy used in transport in Slovenia has decreased in the past years as opposed to the EU average, where the share is on the rise and reached more than 7% in 2016. The share of transport emissions, responsible for 42.1% of the total Slovenian $CO_2$ emissions, remains above the EU average (31.8%). Slovenia is a transit country, which is a contributing factor to this development.




Source: Eurostat.

## Completion of TEN-T Core Network in Slovenia

The TEN-T Core Network in Slovenia has been completed for the road part, but a lot is still to be done to complete also the railway network.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 100% | 6% | 0% | not applicable |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Slovenia

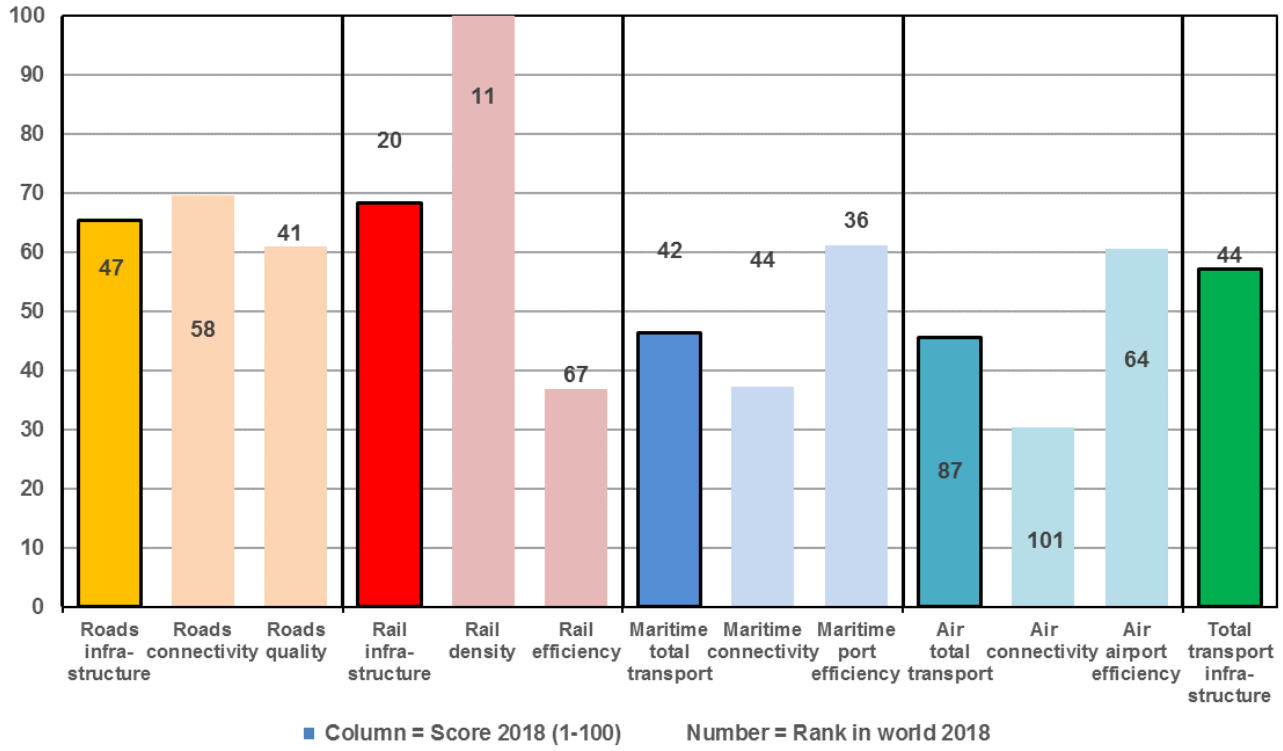
In the 2018 edition of the competitiveness ranking of the World Economic Forum, Slovenia's perceived quality of roads is average, as is the perception of the overall quality of the country's transport infrastructure.

Perceptions of the railway infrastructure are better than for roads, although respondents were not happy about the efficiency of train services.

The quality rankings for air and maritime transport infrastructure have been relatively stable over the last years.

Air connectivity is poor according to the Global Competitiveness Report 2018.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Slovakia

## Main current issues in Slovakia

### Issue 1 – Attractiveness of public transport

Interest in the public passenger bus transport in Slovakia has had a decreasing trend. The demand for suburban bus connections dropped by 40% between 2006 and 2015. The issue is a low load factor of some trains and buses, which may also be caused by unwanted competition. Therefore, the administration plans to set up a transport authority which should coordinate the passenger trains, suburban buses, and eventually also the city transport. The objective is to increase the accessibility, comfort, and hence the attractiveness of the public passenger transport.

### Issue 2 - Aviation safety

In the aviation safety field, the Commission has launched two pre-infringement procedures. The first one in the airworthiness domain (6988/14) evolved into a Letter of Formal Notice (LFN 2015/2064). The second one in the air operations domain (ref 8590/16) was launched more recently.

Both cases show the same problem: a lack of resources (basically safety inspectors) in the Slovak Civil Aviation Authority to carry out the safety oversight tasks that the competent authority is bound to do under the applicable EU regime.

### Issue 3 - Road safety

In 2017, Slovakia reported 276 dead in road accidents or 51 dead per million inhabitants (EU average: 49).

Road safety needs to be improved in general, if Slovakia is to contribute to the EU strategic target of halving the number of road deaths. To further improve the safety of its roads, special attention needs to be paid to the safety of pedestrians.

## Key facts and figures on transport in Slovakia

### Modal split

In 2016, car trips represented 74.2% of the passenger-kilometres travelled, which was below the EU average. On the other hand, Slovakia records a higher use of buses and coaches than the EU average, in addition to rail passenger transport which is also slightly higher than the EU average.

For land freight transport, road transport covers the biggest share of freight transport activity, about 50% of all tonne-kilometres driven. In addition Slovakia has a very high share of rail (almost double of the value for the EU) and pipeline transport (more than three times the EU average).

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Slovakia | 74.2% | 15.7% | 9.3% | 0.8% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Slovakia | 51.4% | 28.8% | 3.1% | 16.7% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

The performance of the logistics sector in Slovakia has deteriorated in 2018 compared to the two previous editions of the LPI. Problems persist with customs procedures tracking and tracing of cargo and timeliness of deliveries.

World Bank Logistics performance indicator

| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 43 | 41 | 53 |
| Score | 3.25 | 3.34 | 3.03 |
| Customs | 52 | 32 | 50 |
| Score | 2.89 | 3.28 | 2.79 |
| Infrastructure | 37 | 39 | 48 |
| Score | 3.22 | 3.24 | 3 |
| International shipments | 38 | 36 | 52 |
| Score | 3.3 | 3.41 | 3.1 |
| Logistics competence | 46 | 51 | 41 |
| Score | 3.16 | 3.12 | 3.14 |
| Tracking & tracing | 63 | 55 | 64 |
| Score | 3.02 | 3.12 | 2.99 |
| Timeliness | 30 | 36 | 86 |
| Score | 3.94 | 3.81 | 3.14 |

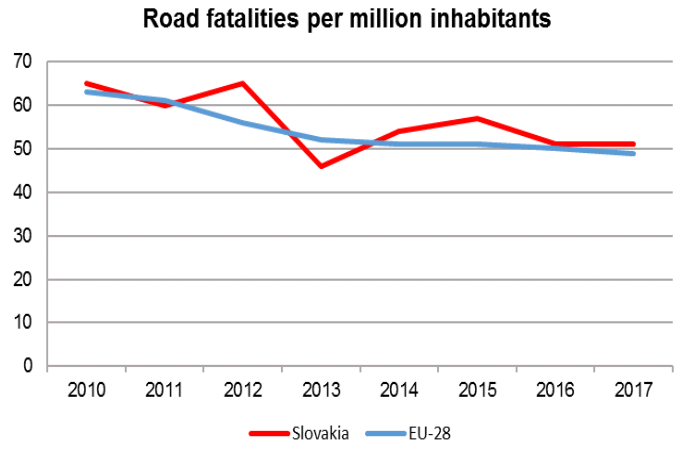
Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Slovakia reduced the number of road deaths by 44% between 2001 and 2010 (EU average: 43 %), then further reduced it by 22% between 2010 and 2017 (EU average: 20%). In 2017, 51 persons per million inhabitants were killed in road accidents (49 on average in EU).

The share of pedestrian fatalities is significantly higher than the EU average (29% versus 21%). Seat-belt wearing rates are lower than the EU average.

Slovakia improves infrastructure via audits, inspections and high-risk site treatment. Slovakia has a zero tolerance law for drink-driving, which is stricter than most other EU countries. Effectiveness of law enforcement is at the level of most EU countries.

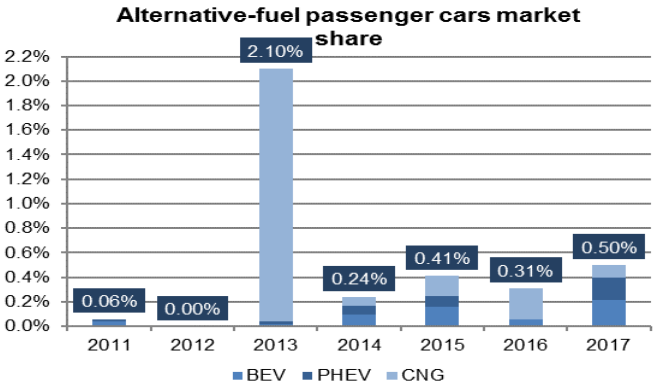



Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The number of alternative-fuelled cars sharply increased in 2013 (from 42 to 1 390) and considerably declined to 279 in 2016. The market share of alternative fuel cars is still small, despite the increase in 2017.

Slovakia partly addresses the requirements of Article 3 of the alternative fuels infrastructure directive in that for all mandatory fuels and modes (electricity and natural gas) targets for infrastructure development are established. No measures have been taken to promote alternative fuels infrastructure in public transport services or to facilitate the deployment of recharging points. According to the European Alternative Fuels Observatory, in 2018, there were 3 public charging points per plug-in electric vehicle (EU average: 8).

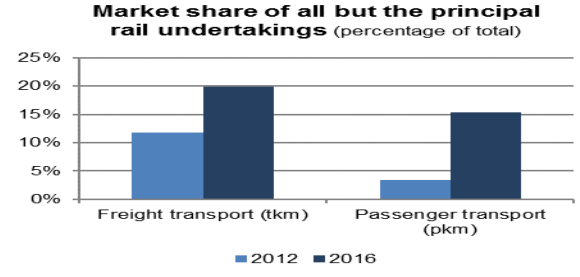



Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).

## Market opening in the railway sector

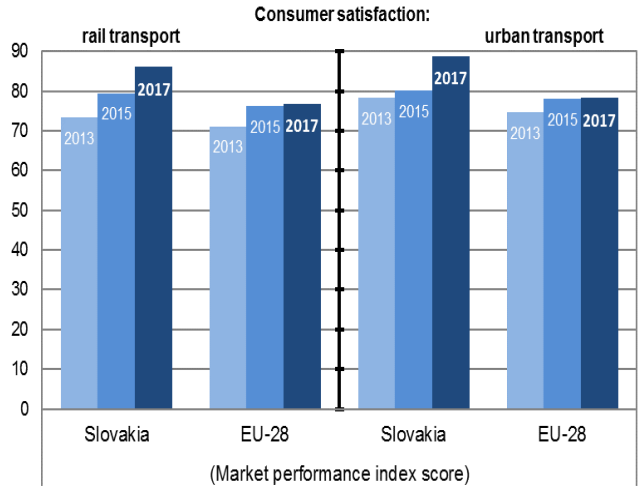
The market opening of the Slovak railway sector is relatively advanced for freight transport. Yet, in the passenger transport segment, market opening still needs to be fostered further, despite the progress made since 2012.

Graph source: DG MOVE Rail Market Monitoring (includes domestic and international transport).



## Consumer satisfaction with public transport

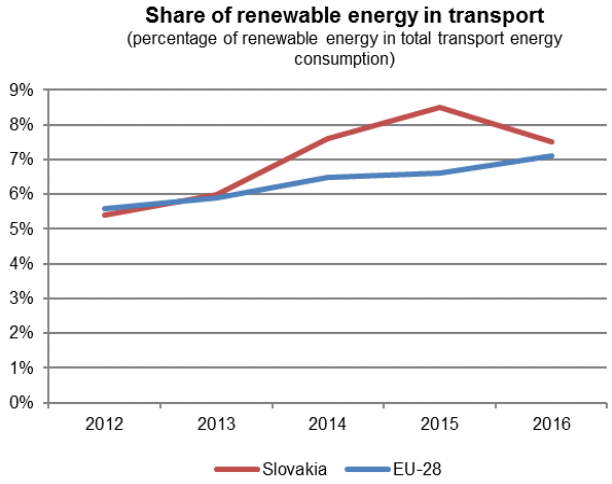
Consumer satisfaction with both rail and urban transport has steadily increased since 2013 and was significantly above the EU average in 2017.




Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

Despite the low share of alternative fuelled passenger cars, Slovakia has a high share of renewable energy in its transport sector, possibly due to the high share of railway in the modal split.




Source: Eurostat.

## Completion of TEN-T Core Network in Slovakia

The TEN-T Core Network in Slovakia is complete for inland waterways, but still far from completion for the other transport modes.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 39% | 20% | not applicable | 100% |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Slovakia

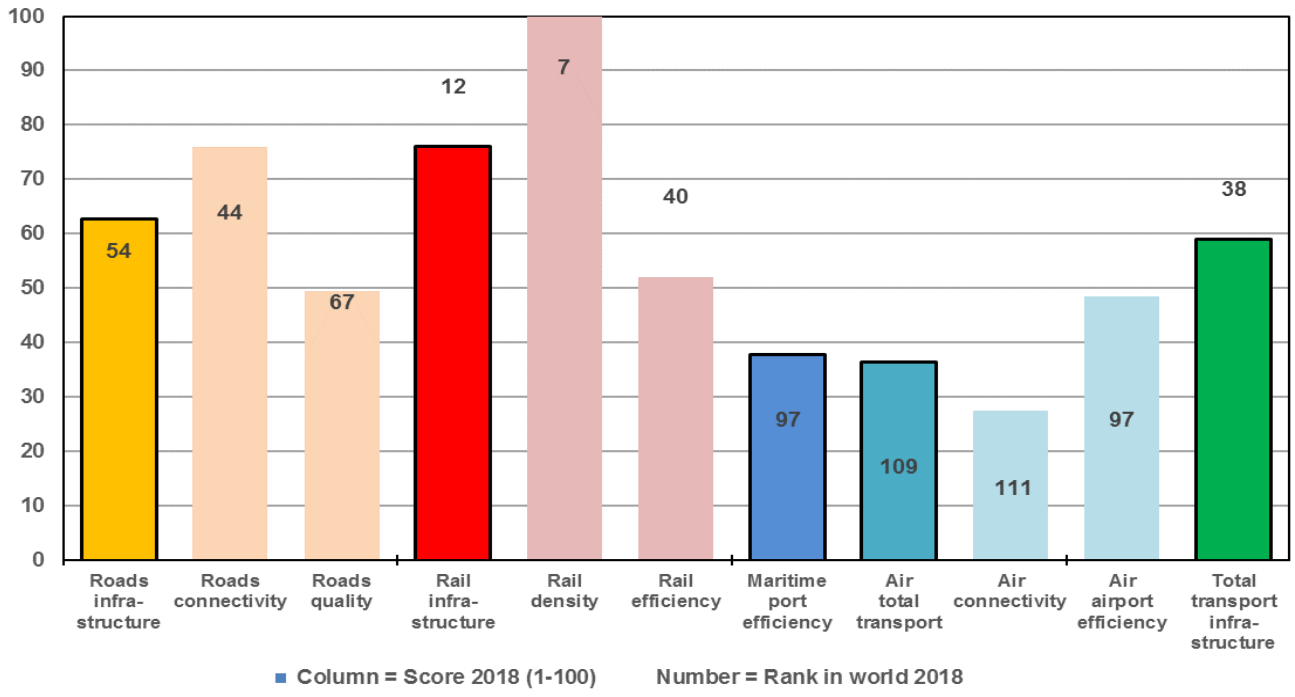
The overall quality of the railway infrastructure in Slovakia is relatively high in international comparison. Investments continue to flow into modernisation of railway corridors, purchase of new and the restoration of the existing train units.

The quality of the road infrastructure is much lower, but has improved in recent years. In 2015, the total expenditure of Slovakia on the construction of motorways and highways was the highest in history, partially due to the approaching end of the second programming period of the EU funds.

However, the operating expenditure on maintenance and repairs is insufficient. In 2015, 45% of the roads were either in bad or emergency condition and taking into consideration the actual level of funds allocated to maintenance and repair, even the roads which currently are in a good condition will gradually deteriorate and will require expensive reconstruction.

Inland waterway navigation on the Danube is controlled by a monopolist, a former state-owned enterprise. The poor level of connectivity to seaports and aviation networks is paired by a declining volume of inland waterway freight transport in Slovakia.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Finland

## Main current issues in Finland

### Issue 1 – Maintenance investments in transport infrastructure

There is a need to establish an economically sustainable model for maintaining the transport infrastructure. The infrastructure maintenance shortfall is currently around EUR 2.5 billion. The Finnish Government has stated that one of the priorities will be to reduce this amount but it is not clear how this will be done and what kind of impact this will have on the existing comprehensive network.

### Issue 2 – Competition in the railway market

More competition in the passenger and freight rail market by removing outstanding obstacles for potential market entrants could benefit businesses and consumers in Finland. The Finnish Government has announced plans on when and how to open up the market for other operators. On 1 January 2019, the new Rail Transport Act entered into force. The revised legislation aims to improve the functioning of the railway transport market, and implements the 4$^{th}$ Railway Package in Finland.

Market opening is based on tendering and on the corporate reorganisation of the incumbent railway undertaking, to guarantee an equal and competition-neutral environment for all service providers. The rolling stock company and the real estate company, separated from the incumbent company, are expected to be fully operational as of spring 2019. Concession contracts will be concluded and the new transport systems will be operational by 2026.

## Key facts and figures on transport in Finland

### Modal split

The modal split for both passenger and freight transport shows a clear preference for road transport over railways, trams and metro, even more when compared to the EU average.

On the other hand, Finland has a much higher share of railways in its modal split for freight transport than the EU average.

Transport on the Finnish inland waterways is often combined maritime-inland waterways transport. Thus the service providers tend to be larger companies with bigger, sea-worthy vessels. For purely national transport of goods and passengers its role is rather marginal.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Finland | 81.8% | 11.9% | 5.6% | 0.8% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Finland | 72.9% | 26.8% | 0.3% | 0.0% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the analysis of the World Bank, the competitiveness of Finland's logistics sector has improved considerably from 2014 to 2018, when looking at its global ranking.

The absolute scores on the Logistics performance indicator have improved mainly for the infrastructure, tracking and tracing (where Finland is Number 1 in the world), and the timeliness of deliveries.

However, the performance on international shipments is still relatively low.

World Bank Logistics performance indicator

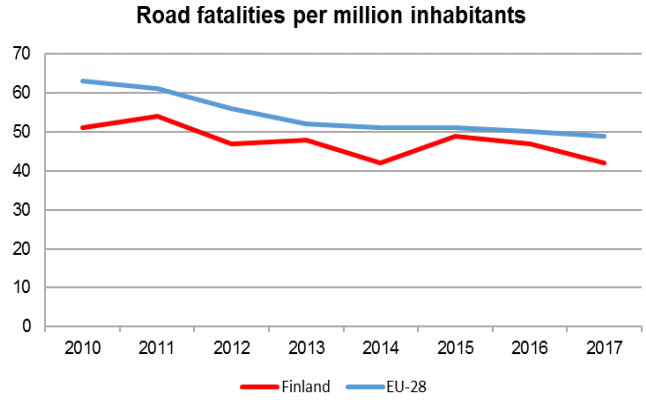
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| **LPI Rank** | **24** | **15** | **10** |
| Score | 3.62 | 3.92 | 3.97 |
| **Customs** | **8** | **4** | **8** |
| Score | 3.89 | 4.01 | 3.82 |
| **Infrastructure** | **28** | **16** | **11** |
| Score | 3.52 | 4.01 | 4 |
| **International shipments** | **20** | **30** | **16** |
| Score | 3.52 | 3.51 | 3.56 |
| **Logistics competence** | **19** | **16** | **15** |
| Score | 3.72 | 3.88 | 3.89 |
| **Tracking & tracing** | **39** | **11** | **1** |
| Score | 3.31 | 4.04 | 4.32 |
| **Timeliness** | **38** | **16** | **8** |
| Score | 3.8 | 4.14 | 4.28 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

Road fatalities in Finland are slightly below the EU average. In 2017 there was an impressive reduction of 11% compared to 2016 in the number of fatalities that is placing Finland among the well performing countries.

Finland's strategy for intelligent transport comprises the aim to constantly develop the transport network until, and at latest by 2025, there are no more than 100 road traffic mortalities annually.

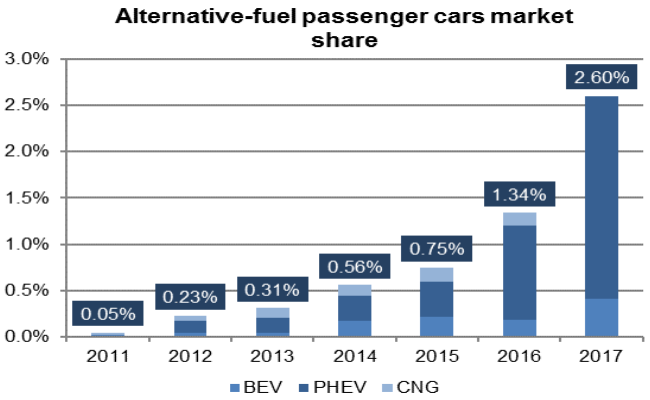



Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The share of alternative fuelled cars in total sales on the Finnish market is still small, but it has increased over the past few years. In 2017, 2.6% of new cars in Finland have been hybrid electric and electric cars. Market uptake of electric cars is also supported by a growing number of charging points and aid granted for the acquisition of fully electric vehicles.

According to the European Alternative Fuels Observatory, in 2018, Finland had 15 public charging points per plug-in electric vehicle (EU average: 8).




Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).

## Market opening in the railway sector

The national railway company, the state-owned *VR Group*, has a monopoly on passenger transport.

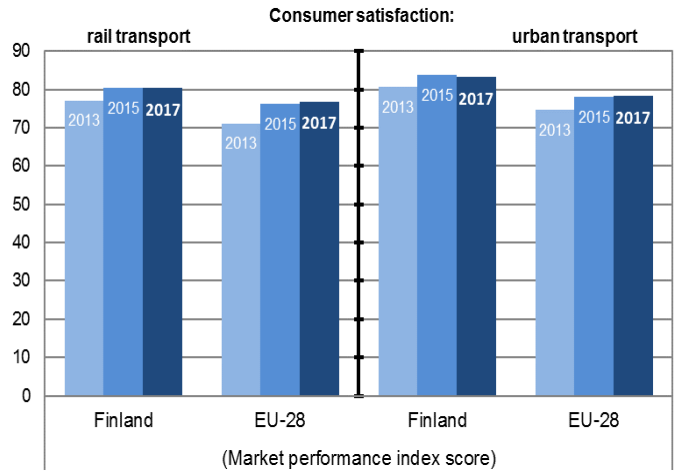
The Finnish Government has announced plans to open up domestic passenger rail traffic to competition in several stages. The intention is that transport services based on the new contracts would be in place throughout the country by June 2026. To ensure access to the market, three state-owned companies would be separated from the *VR Group*: a rolling stock company, a maintenance company and a real estate company.

Due to geographical and historical reasons and due to interoperability (the 1 520 mm track gauge is common to Russia and to the Baltic countries, while the 1 524 mm gauge in Finland is also interoperable with the 1 520 mm gauge), there is significant rail freight traffic between Russia and Finland.

The exceptional track gauge is likely to be the main reason for the continuing dominance of *VR Group* on the freight market. Foreign operators are reluctant to acquire dedicated rolling stock for a market of a limited size. By 2017, the Ministry of transport had granted two licences in addition to that of the *VR Group* for rail freight transport.

## Consumer satisfaction with public transport

Finnish consumers appear to be very satisfied with the quality of rail and urban transport in their country. In particular urban transport in Finland scores higher in consumer satisfaction than on average in the EU.

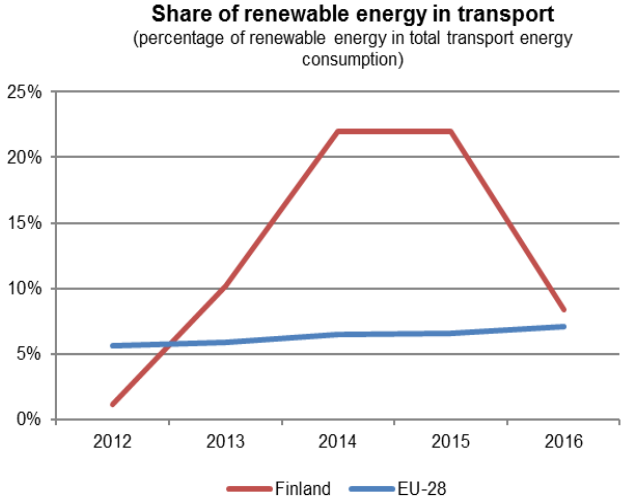



Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

Finland is among the few EU Member States which have already achieved the target for the renewable energy share in transport, reaching 22% in 2015. However, it dropped drastically in 2016, albeit still remaining above the EU average.

In Finland, the main support scheme for renewable energy sources used in transport is a quota system. This system obliges fuel vendors to ensure that biofuels make up a defined percentage of the company's total annual sale of fuel. Furthermore, the use of biofuels is supported through tax regulation.




Source: Eurostat.

## Completion of TEN-T Core Network in Finland

The completion of the TEN-T Core Network in Finland is already very advanced, except for the railway network, where less than half of the Core Network has been completed so far.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 72% | 44% | 100% | 100% |

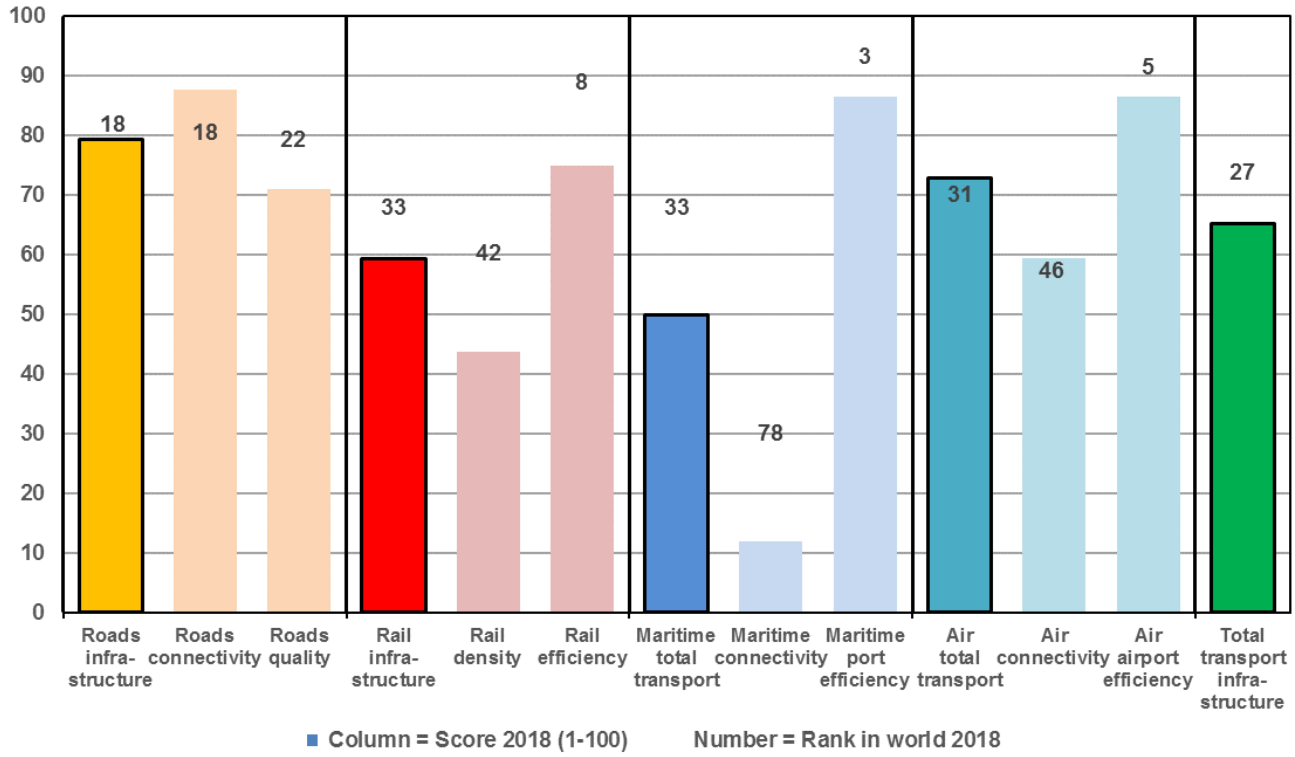
Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Finland

In terms of transport infrastructure quality, Finland ranks very high in the international comparison by the World Economic Forum in 2018.

However, in recent years, a steadily declining trend of the perceived quality of the road infrastructure can be observed. To a lesser extent, this is also valid for the railway infrastructure.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Sweden

## Main current issues in Sweden

### Issue 1 – Investment in transport infrastructure

Despite a good overall macroeconomic performance, Sweden's infrastructure investment situation appears unfavourable, particularly concerning the railway system.

The quality of Swedish transport infrastructure ranks 22nd worldwide in the Global Competitiveness Report (World Economic Forum, 2018). However, railroad infrastructure scores much lower than road infrastructure. It is also relatively low in the context of Sweden's strong performance on most other competitiveness indicators considered in the Report.

The railway system could benefit from increased investment in network maintenance and connections for cross-border traffic.

### Issue 2 – Shifting modes

The Government aims to increasingly shift traffic from road to rail and maritime modes, thereby decreasing the environmental impact of transport. Currently roughly 90% of all goods are transported by road domestically. A transition to other modes would require significant investments.

### Issue 3 - Energy efficiency and sustainability in transport

Despite the highest renewables share in transport in the EU, transport is still predominantly dependant on fossil fuels. In order to improve energy efficiency and reduce emissions, a holistic approach is needed. Sustainable biofuels can help but electrification of the railway network also bears potential for improvement.

## Key facts and figures on transport in Sweden

### Modal split

Sweden is one of the countries with a share of railways in the modal split that is significantly above EU average. This is mainly the case for freight transport, but to a lesser degree also for passenger transport.

Overall, the Swedish domestic transport system seems to rely almost entirely on land transport, with Sweden imposing a tax on travelling by air in order to encourage citizens to use less polluting means of transport.

Modal split for passenger and freight transport in 2016

| Modal split for passenger transport (shares based on passenger-kilometres) | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
|---|---|---|---|---|
| Sweden | 81.9% | 7.0% | 9.2% | 1.9% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| Modal split for freight transport (shares based on tonne-kilometres) | Road | Railways | Inland Waterways | Pipeline |
|---|---|---|---|---|
| Sweden | 70.5% | 29.4% | 0.0% | 0.0% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

Sweden's logistics sector is among the best in the world and scores high across all criteria the World Bank takes into account to calculate its Logistics performance indicator.

More could still be done to improve logistics competence.

World Bank Logistics performance indicator

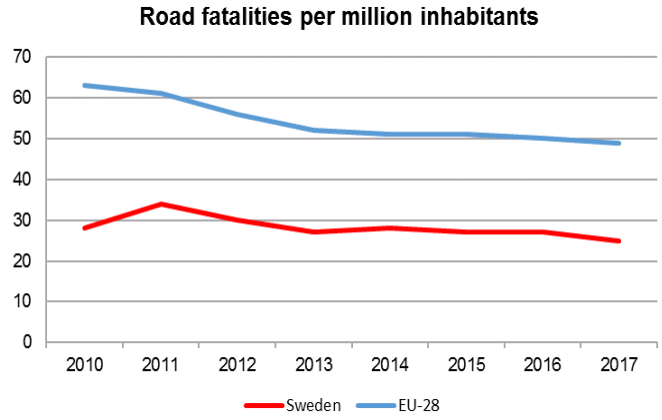
| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| LPI Rank | 6 | 3 | 2 |
| Score | 3.96 | 4.2 | 4.05 |
| Customs | 15 | 8 | 2 |
| Score | 3.75 | 3.92 | 4.05 |
| Infrastructure | 9 | 3 | 3 |
| Score | 4.09 | 4.27 | 4.24 |
| International shipments | 3 | 4 | 2 |
| Score | 3.76 | 4 | 3.92 |
| Logistics competence | 6 | 2 | 10 |
| Score | 3.98 | 4.25 | 3.98 |
| Tracking & tracing | 7 | 1 | 17 |
| Score | 3.97 | 4.38 | 3.88 |
| Timeliness | 8 | 3 | 7 |
| Score | 4.26 | 4.45 | 4.28 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

When it comes to road safety Sweden belongs to the best performing countries in Europe and since 2010 every year the fatality rate has been lower than the EU average.

Sweden developed the Vision Zero road safety policy, a strategic approach towards a safe system where no one is at risk of being fatally or severely injured while using road transport.



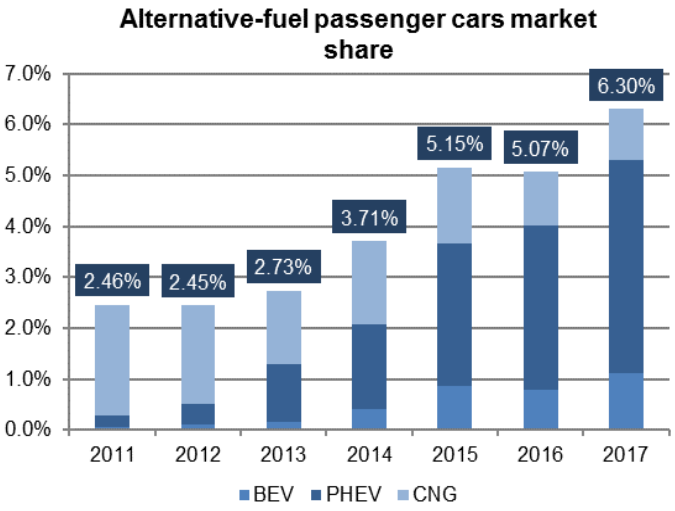

Source: DG MOVE - CARE data.

## Alternative fuels in road transport

Sweden has the highest share of alternative fuels in its passenger car fleet in the EU. In public transport the use of alternative fuels is also encouraged, though the most common alternative fuel is biodiesel.

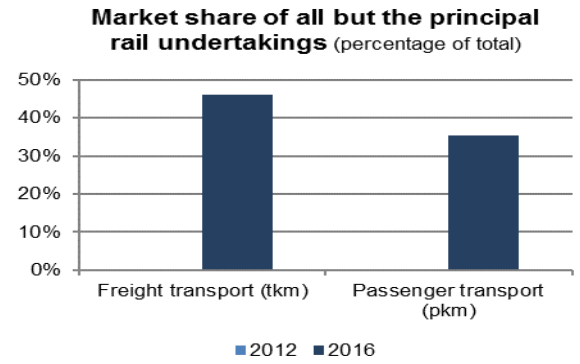
The number of rechargeable electric vehicles doubled between 2014 and 2015, and this rate of increase has, in principle, continued in 2016 and 2017. There were around 49 000 rechargeable electric vehicles in Sweden in December 2017, approximately two-thirds of these being plug-in hybrid electric vehicles and one-third pure electric vehicles.

Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).




## Market opening in the railway sector

The railway undertaking is privatised for both passengers and freight traffic with around 40 operators so far. Sweden currently does not have a high-speed rail network.



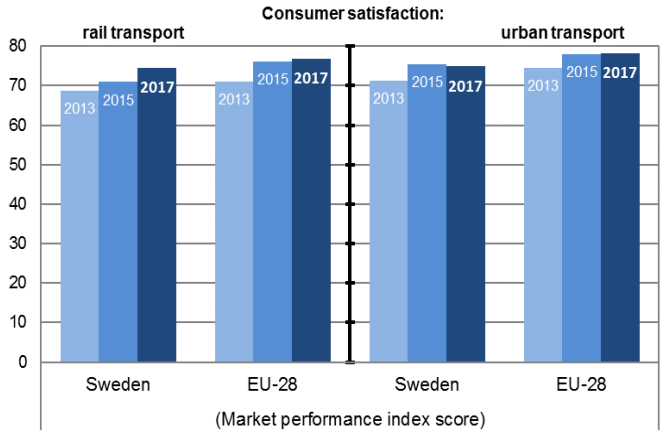

Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

Consumer satisfaction with public transport is rather low in Sweden. For both rail and urban transport it is below EU average.

A special Eurobarometer Survey in 2018 on the satisfaction with rail passenger services (Flash Eurobarometer 463) indicates that the satisfaction with rail travel services is high in Sweden and that the results in 2018 are globally better than in the previous edition in 2013.

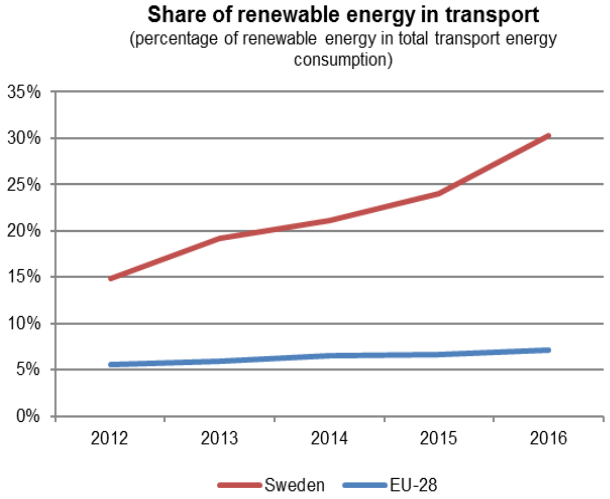
Yet, the assessment of the punctuality and reliability of trains in Sweden is below EU average and has also worsened since 2013. Train passengers in Sweden seem to be less happy with complaint handling mechanisms and with accessibility for passengers with reduced mobility than train passengers in other EU countries.




Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

Sweden has the highest share of renewable energy in transport in the EU, to a large extent because the use of biodiesel in combustion engines is very much encouraged and because railways make up for an important part of the modal split in the country.




Source: Eurostat.

## Completion of TEN-T Core Network in Sweden

The completion of the TEN-T Core Network in Sweden seems to be making good progress.

However, high speed rail infrastructure is still missing in Sweden.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 77% | 51% | 0% | 100% |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

## Quality of the transport infrastructure in Sweden

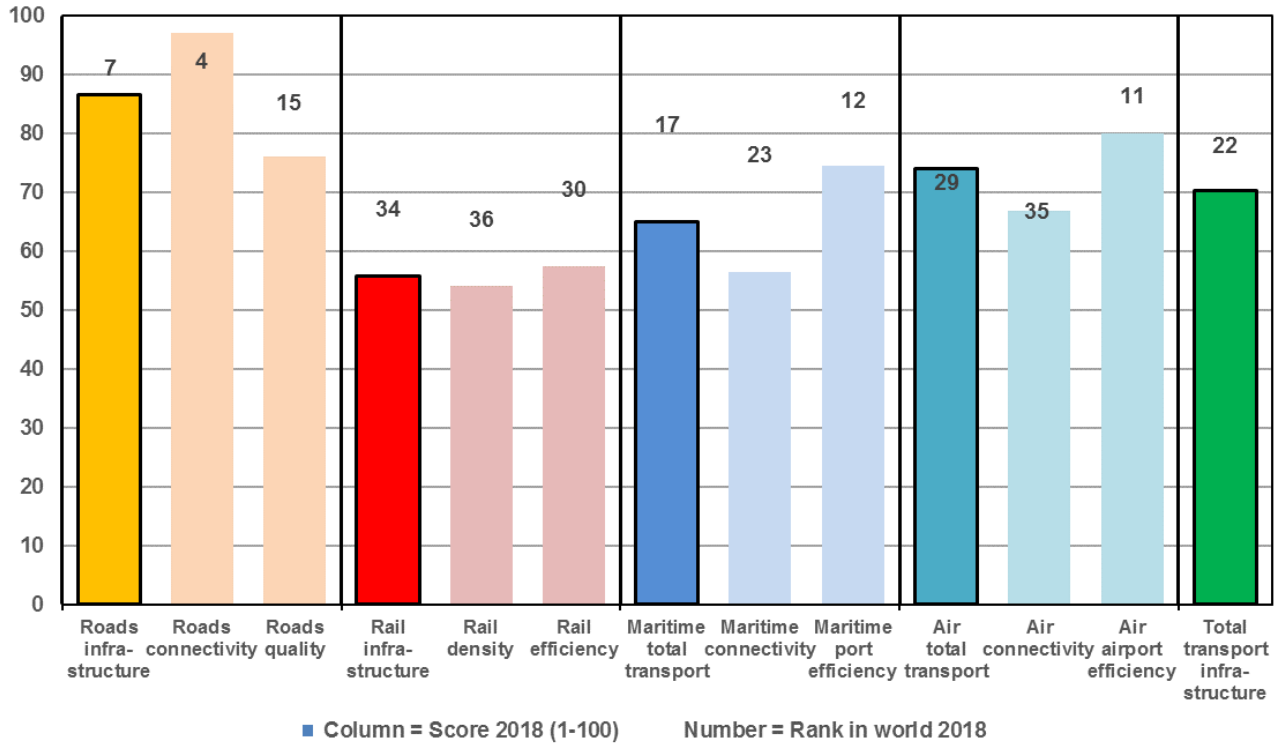
According to the Global Competitiveness Report 2018, Sweden has a very well-performing road transport infrastructure.

The use of rail transport has increased significantly over the last 26 years – passenger km nearly doubled and freight traffic increased by 12%. This has put a certain strain on the network which experiences heavily increased congestion.

Sweden ranks high in terms of the quality of its port infrastructure (17th in the world). Maritime transport continues to be a strong complimentary transport mode in Sweden.

The perceived quality of the air transport infrastructure in Sweden is very high.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# United Kingdom

## Main current issues in the United Kingdom

### Issue 1 – Road congestion

Road congestion levels are significantly above the EU average. According to data from the Commission's Joint Research Centre, car occupants in the United Kingdom were second only to Maltese car users in terms of hours spent in road congestion in 2015.

### Issue 2 – Quality of rail services

The consumer satisfaction with rail transport in the United Kingdom is quite low in comparison with the EU average, according to the Market Performance Index developed by DG JUST. In the 2015 index, the United Kingdom scored 72.5 while the EU average value stood at 76.2.

The punctuality of the long-distance rail services is quite high in the United Kingdom, but less than 90% of the regional and local trains were on time in 2014.

### Issue 3 – Quality of transport infrastructure

Despite high investments in transport infrastructure in the United Kingdom, the perceived quality of the infrastructure shows a declining trend. This is particularly the case for road and railway infrastructure, but also in the field of aviation.

## Key facts and figures on transport in the United Kingdom

### Modal split

The United Kingdom records a high use of passenger cars and in 2016 car trips represented 85% of the passenger-kilometres travelled, above the EU average. On the other hand, the United Kingdom records a lower use of buses and coaches than the EU average, while rail passenger transport is slightly higher.

For land freight transport, road transport covers the largest share of freight transport activity, about 87% of all tonne-kilometres driven. The United Kingdom has a considerably lower share of rail and inland waterway transport than the EU average.

Modal split for passenger and freight transport in 2016

| | Modal split for passenger transport (shares based on passenger-kilometres) | | | |
|---|---|---|---|---|
| | Passenger cars | Buses & Coaches | Railways | Tram & Metro |
| United Kingdom | 85.0% | 4.6% | 8.7% | 1.7% |
| EU-28 | 81.3% | 9.3% | 7.6% | 1.8% |

| | Modal split for freight transport (shares based on tonne-kilometres) | | | |
|---|---|---|---|---|
| | Road | Railways | Inland Waterways | Pipeline |
| United Kingdom | 87.2% | 8.0% | 0.1% | 4.7% |
| EU-28 | 72.8% | 16.6% | 5.9% | 4.6% |

Source: EU Transport in figures, Statistical Pocketbook 2018.

### Performance of the logistics sector

According to the World Bank, the logistics sector in the United Kingdom is among the 10 best performing in the world, mostly because of its performance in terms of infrastructure, logistics competence, timeliness and tracking and tracing. In particular, in the areas of tracking and tracing and timeliness, the performance of the United Kingdom's logistics sector in 2018 was significantly better than in 2016.

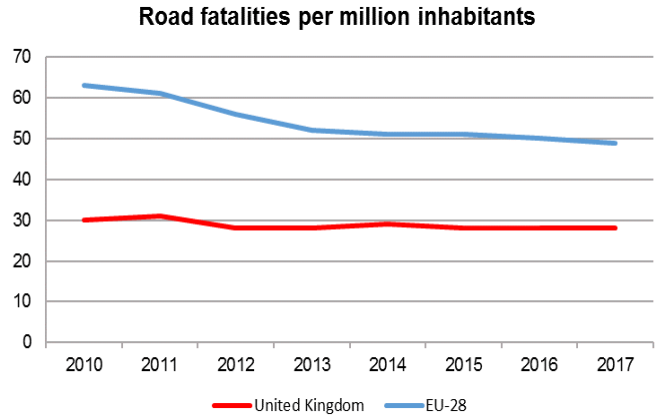
World Bank Logistics performance indicator

| Logistics performance indicator (LPI) (World Bank) | 2014 | 2016 | 2018 |
|---|---|---|---|
| **LPI Rank** | **4** | **8** | **9** |
| Score | 4.01 | 4.07 | 3.99 |
| **Customs** | **5** | **5** | **11** |
| Score | 3.94 | 3.98 | 3.77 |
| **Infrastructure** | **6** | **5** | **8** |
| Score | 4.16 | 4.21 | 4.03 |
| **International shipments** | **12** | **11** | **13** |
| Score | 3.63 | 3.77 | 3.67 |
| **Logistics competence** | **5** | **7** | **7** |
| Score | 4.03 | 4.05 | 4.05 |
| **Tracking & tracing** | **5** | **7** | **4** |
| Score | 4.08 | 4.13 | 4.11 |
| **Timeliness** | **7** | **8** | **5** |
| Score | 4.33 | 4.33 | 4.33 |

Source: World Bank (scores range from 1 = 'very low' to 5 = 'very high').

## Road safety

While the number of registered cars in the United Kingdom is increasing, the road fatalities have decreased. In 2017, there were about 28 road fatalities per million inhabitants in the United Kingdom, compared to 49 in the EU on average. This makes the UK one of the top performers in terms of road safety in the EU. However, the number of fatalities in road accidents has remained stable over the past few years.

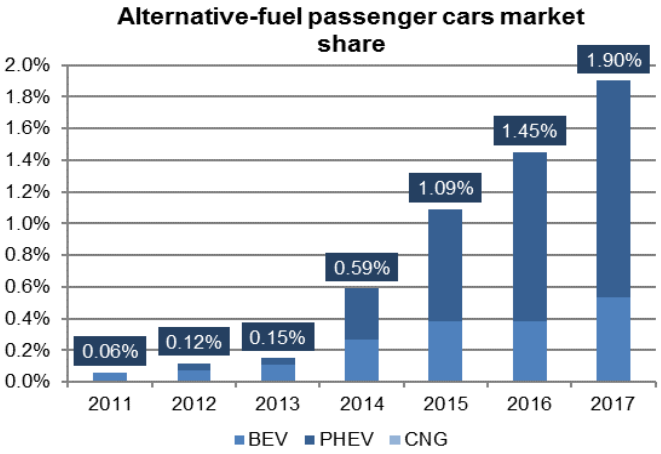



Source: DG MOVE - CARE data.

## Alternative fuels in road transport

The number of electric charging points in the United Kingdom has increased significantly over the period from 2013 to 2016. The number and the market share of alternative-fuelled cars are increasing: the market share of new passenger cars using alternative fuels has almost doubled from 2015 to 2017.

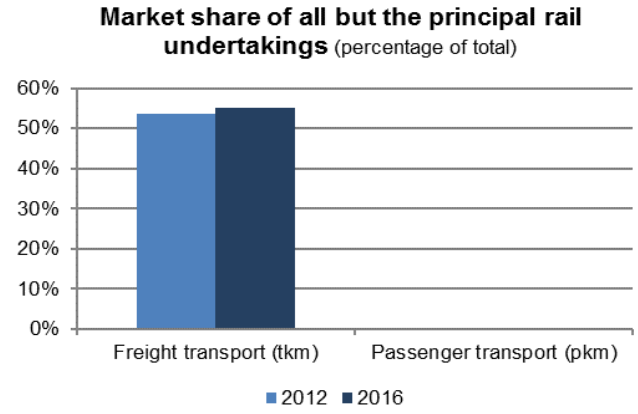
Source: European Alternative Fuels Observatory (BEV = battery electric vehicle; PHEV = plug-in hybrid electric vehicle; CNG = compressed natural gas).




## Market opening in the railway sector

The United Kingdom implemented the most far reaching structural reform of railways in the mid 1990's by entirely privatising the sector.

Rail freight was privatised and rail passenger transport was tendered to the market in up to 15 year franchises. Unlike the vast majority of passenger rail services where private companies run services under a time limited franchised arrangement to a Department for Transport specification, rail freight is a commercial service provision by private freight train operating companies for private freight customers, sometimes through an intermediary logistics service provider.

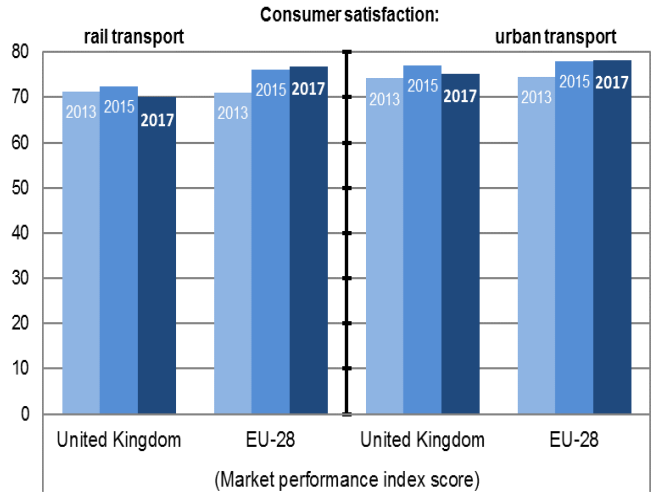



Source: DG MOVE Rail Market Monitoring (includes domestic and international transport).

## Consumer satisfaction with public transport

Consumers in the United Kingdom show relatively low satisfaction with rail transport.

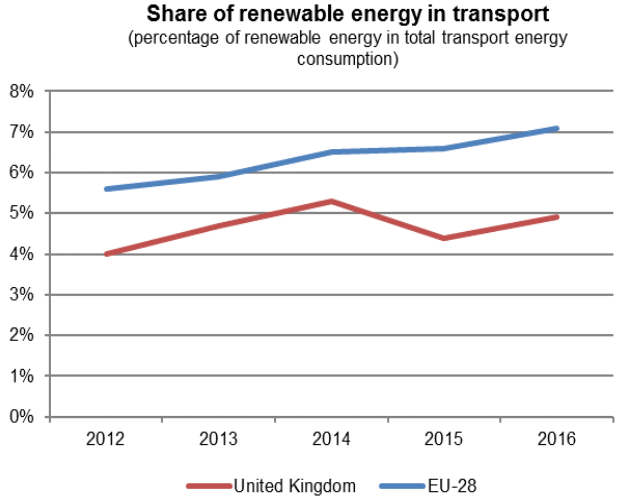
For urban transport, consumer satisfaction is only slightly below the EU average.




Source: DG JUST Consumer Markets Scoreboard (composite index from 0 = 'low performance to 100 = 'high performance').

## Share of renewable energy in transport

The share of renewable energy in transport has fluctuated, but is below the EU average. The gap has been widening since 2014.




Source: Eurostat.

## Completion of TEN-T Core Network in the United Kingdom

The United Kingdom's part of the TEN-T Core Network is almost complete, except for a gap in the high speed rail network.

| Completion of TEN-T Core Network 2016 | | | |
|---|---|---|---|
| Road | Conventional Rail | High Speed Rail | Inland Waterways |
| 100% | 100% | 81% | not applicable |

Source: DG MOVE TENTec (The statistics reflect the official maps contained in Annex I of Regulation (EU) No 1315/2013. The term completed refers to "existing" infrastructure, which doesn't necessarily mean that infrastructure requirements, as stated in the above mentioned regulation, are already implemented. The time horizon for the completion of the TEN-T Core Network is 2030).

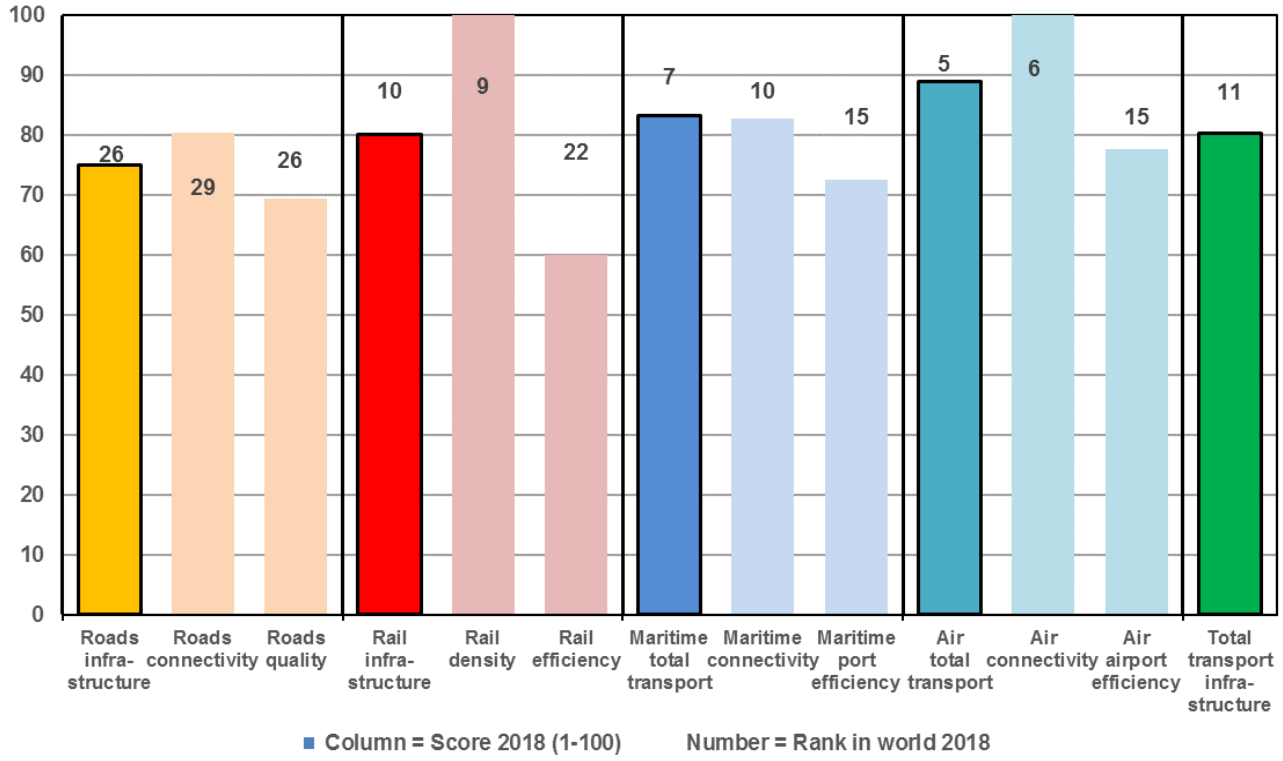
## Quality of the transport infrastructure in the United Kingdom

The United Kingdom ranks among the top European countries regarding the perception of its transport infrastructure, according to the Global Competitiveness Report 2018.

The relatively low perception of the road quality can be attributed to the rise in traffic congestion. The United Kingdom is one of the top European countries in terms of time spent in traffic.

Another underlying factor is the increasing concern about the deteriorating state of the existing rail and road infrastructure (in particular bridges) and insufficient funds for road maintenance.

Graph source: World Economic Forum, The Global Competitiveness Report 2018. **The columns represent the quality scores in each area from 1 to 100 (best)**. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies.



# Statistical annex

Table 1 – Access to market and market perform

| Country | OECD regulatory restriction indicators | | | Access to rail market - market share of all but the principal undertakings | | Labour productivity of the transport sector in 1000 EUR (2016) | Performance of the passengers transport markets - Market Performance Indicator | | | Share of home-based vehicles | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Air (2013) | Road (2013) | Rail (2013) | Freight (2016) | Passengers (2016) | | Train services (2017) | Airline services (2017) | Local public transport (2017) | In exports to EU28 (2017) | In imports from EU28 (2017) |
| Belgium | 0.1 | 2.3 | 3.8 | 48.6% | - | 82.5 | 74.0 | 80.9 | 73.9 | 13.5% | 10.6% |
| Bulgaria | 0.0 | 3.0 | 3.8 | 54.5% | 0.0% | 14.3 | 62.5 | 84.3 | 71.6 | 93.4% | 90.8% |
| Czechia | 2.9 | 2.3 | 2.3 | 34.9% | - | 27.6 | 81.3 | 83.1 | 83.7 | 50.0% | 43.7% |
| Denmark | 0.4 | 1.5 | 2.3 | 26.1% | 12.0% | 87.1 | 76.0 | 83.4 | 75.7 | 16.7% | 7.6% |
| Germany | 0.0 | 1.5 | 2.3 | 45.5% | 15.7% | 46.4 | 84.3 | 83.6 | 84.4 | 16.1% | 12.4% |
| Estonia | 2.9 | 2.3 | 2.6 | 20.1% | 6.0% | 30.1 | 87.3 | 83.1 | 85.9 | 71.2% | 43.8% |
| Ireland | 0.8 | 1.5 | 4.9 | 0.0% | 0.0% | - | 75.4 | 81.6 | 74.7 | 67.8% | 44.6% |
| Greece | 0.0 | 3.3 | 4.5 | 0.0% | 0.0% | 44.0 | 78.2 | 82.2 | 76.6 | 63.6% | 62.6% |
| Spain | 0.0 | 2.3 | 4.0 | 29.5% | 0.0% | 64.8 | 74.6 | 75.8 | 76.2 | 61.4% | 56.8% |
| France | 0.5 | 4.0 | 3.8 | 41.0% | 0.0% | 64.0 | 83.3 | 84.4 | 84.3 | 8.6% | 7.2% |
| Croatia | 4.0 | 1.5 | 5.3 | 14.7% | 0.0% | 25.7 | 70.8 | 80.9 | 72.4 | 78.2% | 64.1% |
| Italy | 0.0 | 4.3 | 2.8 | 55.1% | 25.2% | 60.8 | 70.3 | 81.0 | 69.0 | 11.4% | 10.7% |
| Cyprus | 2.1 | 1.5 | - | - | - | 46.1 | | 82.6 | 74.1 | - | - |
| Latvia | 3.0 | 1.5 | 2.6 | 25.5% | 7.0% | 20.9 | 80.3 | 81.0 | 81.8 | 58.6% | 54.4% |
| Lithuania | 1.5 | 1.5 | 2.6 | 0.0% | 0.0% | 19.8 | 87.2 | 85.2 | 82.2 | 76.5% | 64.1% |
| Luxembourg | 1.5 | 1.5 | 5.4 | 0.0% | 0.0% | 80.3 | 85.4 | 85.2 | 84.4 | 41.8% | 43.4% |
| Hungary | 0.0 | 2.0 | 3.1 | 42.1% | 3.5% | 22.6 | 86.5 | 91.8 | 84.0 | 58.8% | 56.7% |
| Malta | 2.9 | 1.5 | - | - | - | - | | 84.1 | 71.5 | - | - |
| Netherlands | 0.2 | 2.3 | 3.1 | 45.0% | 5.0% | 80.8 | 74.5 | 80.6 | 75.9 | 35.8% | 30.2% |
| Austria | 0.0 | 1.5 | 2.6 | 26.1% | 11.7% | 76.3 | 85.3 | 85.1 | 84.9 | 19.0% | 16.5% |
| Poland | 2.8 | 2.3 | 2.8 | 48.6% | 44.7% | 23.0 | 77.2 | 82.0 | 79.4 | 94.3% | 93.8% |
| Portugal | 3.0 | 2.3 | 3.9 | 15.4% | 8.3% | 43.5 | 79.3 | 81.5 | 75.5 | 75.7% | 64.5% |
| Romania | 2.9 | 3.0 | 2.3 | 62.9% | - | 13.7 | 63.4 | 84.9 | 73.7 | 82.5% | 69.6% |
| Slovenia | 3.6 | 2.3 | 3.8 | 13.0% | 0.0% | 46.9 | 79.2 | 87.1 | 82.0 | 70.0% | 68.7% |
| Slovakia | 0.0 | 1.5 | 3.1 | 19.9% | 15.3% | 28.3 | 86.1 | 83.4 | 88.8 | 64.6% | 57.5% |
| Finland | 1.7 | 1.5 | 4.4 | 0.1% | 0.0% | 62.6 | 80.3 | 82.8 | 83.2 | 22.7% | 22.4% |
| Sweden | 0.6 | 1.5 | 3.0 | 46.0% | 35.2% | 65.9 | 74.6 | 81.9 | 74.8 | 10.0% | 8.1% |
| United Kingdom | 0.0 | 1.5 | 0.3 | 55.0% | 86.9% | 68.1 | 70.1 | 81.3 | 75.3 | 18.4% | 10.5% |

Note: Top five scores in green, bottom five scores in red, where relevant to provide ranking. In the case of the indicators of market share of non-incumbents, performances under 3 % % are highlighted. If not otherwise specified, data are derived from European Commission sources.

Table 2 – Infrastructure

| Country | World Bank Logistic Performance Index (2018) | | World Economic Forum Quality of Infrastructure Index (2018) | | | | | Density of motorway network (km) | | Density of rail network (km) | | Km of high speed rail lines (2017) | Transport infra-structure investment % of GDP (2016) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LPI | Infra-structure component | Roads | Rail-way | Sea | Air | Total trans-port | per 1 000 km² (2016) | per 1 million inhabitants (2016) | per 1 000 km² (2016) | per 1 million inhabitants (2016) | | | |
| Belgium | 4.0 | 4.0 | 71.5 | 75.8 | 82.5 | 71.4 | 74.1 | 57.8 | 155.3 | 118.2 | 317.7 | 209 | 0.5% | |
| Bulgaria | 3.0 | 2.8 | 53.8 | 64.7 | 29.5 | 52.7 | 50.7 | 6.7 | 104.2 | 36.3 | 567.3 | | 1.2% | |
| Czechia | 3.7 | 3.5 | 67.7 | 81.0 | | 63.9 | 70.7 | 15.5 | 115.6 | 120.0 | 894.5 | | 0.9% | |
| Denmark | 4.0 | 4.0 | 77.1 | 77.8 | 63.0 | 74.5 | 73.8 | 29.1 | 218.3 | 58.9 | 441.7 | | 0.8% | |
| Germany | 4.2 | 4.4 | 83.9 | 87.2 | 81.0 | 88.3 | 84.7 | 36.4 | 157.5 | 109.2 | 472.5 | 1 658 | 0.6% | |
| Estonia | 3.3 | 3.1 | 69.7 | 64.7 | 40.9 | 45.1 | 55.8 | 3.2 | 110.2 | 20.3 | 697.8 | | 0.9% | |
| Ireland | 3.5 | 3.3 | 67.1 | 62.3 | 39.7 | 72.5 | 59.7 | 13.0 | 191.5 | 26.9 | 395.9 | | 1.2% | |
| Greece | 3.2 | 3.2 | 64.6 | 38.2 | 53.5 | 72.4 | 58.1 | 14.0 | 171.1 | 17.0 | 208.0 | | 0.9% | 2015 |
| Spain | 3.8 | 3.8 | 88.1 | 75.4 | 76.4 | 87.8 | 82.0 | 30.5 | 331.9 | 31.5 | 342.2 | 2 413 | 0.5% | |
| France | 3.8 | 4.0 | 88.0 | 84.5 | 66.7 | 86.8 | 81.8 | 18.3 | 173.3 | 44.8 | 423.4 | 2 734 | 0.7% | |
| Croatia | 3.1 | 3.0 | 73.6 | 63.8 | 44.6 | 56.8 | 60.5 | 23.1 | 315.3 | 46.0 | 627.1 | | 0.5% | |
| Italy | 3.7 | 3.9 | 70.2 | 74.1 | 60.8 | 81.0 | 71.3 | 23.0 | 114.6 | 56.7 | 282.2 | 896 | 0.5% | 2015 |
| Cyprus | 3.2 | 2.9 | 71.5 | | 38.2 | 59.4 | 55.0 | 29.4 | 318.2 | | | | | |
| Latvia | 2.8 | 3.0 | 61.2 | 64.9 | 34.3 | 53.9 | 54.8 | | | 28.8 | 953.8 | | 0.9% | |
| Lithuania | 3.0 | 2.7 | 73.2 | 65.5 | 37.8 | 46.7 | 55.9 | 4.8 | 110.3 | 29.3 | 671.0 | | 1.1% | |
| Luxembourg | 3.6 | 3.6 | 72.3 | 82.3 | | 55.6 | 70.4 | 62.3 | 272.6 | 106.3 | 465.6 | | 1.0% | 2015 |
| Hungary | 3.4 | 3.3 | 64.5 | 73.2 | | 59.1 | 63.4 | 20.7 | 196.4 | 83.3 | 790.9 | | 1.0% | |
| Malta | 2.8 | 2.9 | 37.3 | | 61.1 | 58.8 | 49.9 | | | | | | 0.5% | 2014 |
| Netherlands | 4.0 | 4.2 | 84.2 | 87.8 | 87.3 | 84.4 | 85.5 | 66.4 | 161.5 | 73.6 | 179.0 | 120 | 0.6% | 2011 |
| Austria | 4.0 | 4.2 | 81.2 | 85.6 | | 67.9 | 77.8 | 20.8 | 198.7 | 58.6 | 560.5 | 67 | 0.6% | |
| Poland | 3.5 | 3.2 | 65.5 | 74.6 | 56.6 | 64.2 | 65.2 | 5.2 | 43.2 | 58.9 | 485.3 | 224 | 0.8% | |
| Portugal | 3.6 | 3.3 | 87.2 | 64.4 | 57.3 | 73.1 | 71.0 | 33.3 | 297.3 | 27.7 | 247.6 | | 0.2% | 2013 |
| Romania | 3.1 | 2.9 | 49.5 | 67.2 | 35.8 | 56.5 | 53.4 | 3.1 | 38.0 | 45.2 | 548.0 | | 1.7% | |
| Slovenia | 3.0 | 3.0 | 65.4 | 68.4 | 46.5 | 45.5 | 57.2 | 38.1 | 374.1 | 59.6 | 585.2 | | 2.2% | |
| Slovakia | 3.3 | 3.3 | 62.7 | 76.0 | | 36.5 | 58.9 | 9.4 | 85.2 | 73.9 | 667.1 | | 0.2% | |
| Finland | 4.0 | 4.0 | 79.4 | 59.4 | 50.0 | 72.9 | 65.3 | 2.6 | 161.7 | 17.5 | 1 076.8 | | 0.8% | |
| Sweden | 4.1 | 4.2 | 86.6 | 55.8 | 65.0 | 74.0 | 70.3 | 4.7 | 211.9 | 24.2 | 1 088.7 | | 0.7% | |
| United Kingdom | 4.0 | 4.0 | 75.0 | 80.1 | 83.3 | 89.0 | 80.4 | 15.4 | 57.2 | 66.7 | 247.0 | 113 | 0.9% | |

Note: Top five scores in green, bottom five scores in red, where relevant to provide ranking. If not otherwise specified, data are derived from European Commission sources.

Table 3 – Environmental and social dimension

| Country | Hours spent in road congestion annually (2017) | Share of renewable energy sources in transport (2016) | $CO_2$ emissions from new registered vehicles (g/km) (2016) | | Share of electrified railway lines over total lines in use (2016) | Road fatalities per million inhabitants (2017) | Environmental taxes on transport (fuel and other taxes) (2016) | | Plug-in electric vehicle share in new registrations of passenger cars (2017) | Charging points per 100 000 inhabitants in (peri-)urban areas (2018) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Passenger cars | Light-duty vehicles | | | as % of GDP | as % of total taxation | | |
| Belgium | 39.1 | 5.9% | 115.9 | 169.2 | 86.0% | 54 | 1.9% | 4.2% | 2.7% | 30.0 |
| Bulgaria | 35.0 | 7.3% | 125.8 | 141.1 | 71.2% | 96 | 2.6% | 9.0% | 0.4% | 7.2 |
| Czechia | 23.6 | 6.4% | 121.2 | 183.2 | 34.0% | 55 | 1.9% | 5.4% | 0.2% | 25.4 |
| Denmark | 22.3 | 6.8% | 106.0 | 151.7 | 24.5% | 30 | 2.5% | 5.3% | 0.6% | 200.1 |
| Germany | 29.9 | 6.9% | 126.9 | 178.7 | 52.8% | 39 | 1.5% | 3.8% | 1.6% | 71.0 |
| Estonia | 18.8 | 0.4% | 133.9 | 161.9 | 14.4% | 36 | 2.3% | 6.7% | 0.2% | 66.3 |
| Ireland | 34.4 | 5.0% | 112.0 | 163.5 | 2.7% | 33 | 1.5% | 6.3% | 0.7% | 77.6 |
| Greece | 35.5 | 1.7% | 106.3 | 155.2 | 23.2% | 69 | 2.7% | 6.8% | 0.2% | 0.9 |
| Spain | 26.3 | 5.3% | 114.4 | 148.0 | 63.7% | 39 | 1.4% | 4.1% | 0.6% | 17.4 |
| France | 30.1 | 8.9% | 109.8 | 158.9 | 56.8% | 51 | 1.5% | 3.2% | 1.8% | 69.6 |
| Croatia | 23.5 | 1.3% | 111.5 | 150.1 | 37.2% | 80 | 3.1% | 8.3% | 0.1% | 59.9 |
| Italy | 37.7 | 7.2% | 113.3 | 145.0 | 71.5% | 56 | 2.1% | 5.0% | 0.2% | 10.8 |
| Cyprus | 31.8 | 2.7% | 123.5 | 144.1 | | 62 | 2.7% | 8.2% | 0.8% | 4.2 |
| Latvia | 22.6 | 2.8% | 128.9 | 156.6 | 13.5% | 70 | 2.3% | 7.5% | 0.6% | 7.3 |
| Lithuania | 21.5 | 3.6% | 126.2 | 168.8 | 6.4% | 67 | 1.8% | 6.1% | 0.3% | 12.7 |
| Luxembourg | 36.4 | 5.9% | 126.1 | 167.8 | 95.3% | 42 | 1.7% | 4.4% | 1.9% | 72.6 |
| Hungary | 26.4 | 7.4% | 125.9 | 168.0 | 39.9% | 64 | 2.1% | 5.4% | 1.0% | 33.1 |
| Malta | 76.3 | 5.4% | 111.8 | 146.9 | | 41 | 2.3% | 7.0% | 0.4% | 21.1 |
| Netherlands | 32.1 | 4.6% | 105.9 | 155.5 | 75.7% | 31 | 2.1% | 5.3% | 2.2% | 275.4 |
| Austria | 27.3 | 10.6% | 120.4 | 171.6 | 71.9% | 47 | 2.0% | 4.8% | 2.1% | 137.7 |
| Poland | 25.1 | 3.9% | 125.8 | 171.3 | 64.0% | 75 | 2.3% | 6.9% | 0.2% | 6.0 |
| Portugal | 29.0 | 7.5% | 104.7 | 140.1 | 64.9% | 58 | 2.4% | 7.0% | 1.9% | 32.9 |
| Romania | 31.8 | 6.2% | 122.0 | 170.1 | 37.4% | 99 | 1.9% | 7.5% | 0.4% | 4.5 |
| Slovenia | 26.9 | 1.6% | 119.0 | 168.2 | 41.4% | 50 | 3.0% | 8.2% | 0.7% | 57.9 |
| Slovakia | 23.7 | 7.5% | 124.8 | 185.6 | 43.8% | 51 | 1.6% | 5.1% | 0.4% | 70.3 |
| Finland | 17.8 | 8.4% | 120.0 | 167.0 | 55.2% | 42 | 2.2% | 5.0% | 2.6% | 58.9 |
| Sweden | 21.5 | 30.3% | 123.1 | 155.2 | 75.2% | 25 | 1.4% | 3.3% | 5.3% | 104.3 |
| United Kingdom | 45.2 | 4.9% | 120.1 | 172.9 | 33.7% | 28 | 1.9% | 5.6% | 1.9% | 33.9 |

Note: Top five scores in green, bottom five scores in red, where relevant to provide ranking. If not otherwise specified, data are derived from European Commission sources.

## Indicators presented in the tables:

### Table 1 – Access to market and market performance

OECD regulatory restriction indicators: The selected indicators are the OECD indicators of regulation in energy, transport and communications (ETCR). They summarise regulatory provisions in air passenger transport and road freight transport (2013). The index scale ranges from 0 – least restrictive to 6 – most restrictive. The data are collected every 5 years.

Market share of all but the principal undertakings: The total market share of all but the principal railway undertakings, for both freight and passenger transport (2016, source: European Commission - DG MOVE) can be considered an indicator of the level of competition in the rail sector. Not applicable to Cyprus and Malta.

Labour productivity: Apparent labour productivity – gross value added per person employed in the transportation and storage sector (NACE rev. 2 section H) (data for 2016; source: Eurostat).

Performance of the passenger transport markets: The selected indicator is the "market performance indicator" (MPI). It indicates a country's rank among the other countries for a specific market in 2015, as perceived by users, related to train, airline and the local public transport services. MPI is a composite index reflecting five main aspects of consumer experience: (1) the ease of comparing offers, (2) consumer trust in retailers/providers to comply with consumer protection rules, (3) the experience of problems and the degree of detriment suffered, (4) overall consumer satisfaction and (5) choice of offers available (Source: European Commission).

Share of home-based vehicles in tonne-km generated in exports to and imports from other EU28 countries: This indicator measures the relative competitiveness of a country's road haulage sector in the EU via the share of vehicles registered in the reporting country in total tonne-km generated when goods were exported from or imported to that country by road to/from another EU country (2017, source: Eurostat).

### Table 2 – Infrastructure

Logistics performance index: The selected indicator is the World Bank's logistics performance index (World Bank, 2018). LPI ranks countries on six dimensions of trade - including customs performance, infrastructure quality, and timeliness of shipments. The data used in the ranking comes from a survey of logistics professionals. They are asked questions about the foreign countries in which they operate.

Quality of infrastructure: The selected indicators are the indices of satisfaction with respect to road, rail, seaports (for landlocked countries' accessibility to seaport facilities) and air transport infrastructure quality. They are part of the World Economic Forum Global Competitiveness Report 2018. Scores in each transport mode range from 1 to 100 (best). The indicators build on measures of efficiency and connectivity. Efficiency is measured as frequency, punctuality, speed and price (includes access to seaport services for landlocked countries). Roads connectivity relates to the average speed and straightness of a driving itinerary connecting the cities that together account for at least 15% of the total population. Airport connectivity measures the degree of integration of a country within the global air transport network. Maritime connectivity relates to the quantity of services provided by liner companies. The figures are based on an executive opinion survey.

Density of the motorway network: Per 1 000 km² of territory and per 1000 inhabitants (2016, source: European Commission).

Density of the railway network: Per 1 000 km² of territory and per 1000 inhabitants (2016, source: European Commission).

Km of high-speed rail lines: For EU countries with high speed rail infrastructure, the length of lines, but not a ranking, has been provided (2017, source: European Commission).

Total inland transport infrastructure investment: Investment and maintenance spending on transport infrastructures (road, rail, sea ports and airports) as % of GDP (2016, source: OECD). It should be underlined that

data for this indicator are not completely harmonised. Different categories of investments and maintenance could be included depending on the country. The coverage is partial for some countries. The data are collected on a voluntary basis. Furthermore, high values are not necessarily associated with a positive performance and would have to be compared to the actual investment needs (e.g. in the case of "catching-up" countries).

### Table 3 – Environmental and social dimension

Congestion: Average annual hours spent in congestion per vehicle (2017, source: JRC based on TomTom data).

Deployment of clean transport technologies: The selected indicators are the share of Renewable Energy Sources (RES) in transport (2016, source: Eurostat).

CO2 emissions from new passenger cars: Gram of $CO_2$/km (2015, source: EEA).

CO2 emissions from new vans: Gram of $CO_2$/km (2016, source: EEA).

Share of electrified railway lines over total lines in use: 2016, source: European Commission.

Road safety: The number of road fatalities per million inhabitants (2017, source: European Commission – CARE database).

Transport taxation: Revenues from environmental taxes on transport (fuel and other taxes) as % of GDP and total taxation revenues (2016, source: European Commission).

PEV market share in new passenger car registrations: Plug-in electric vehicles (PHEV+BEV), M1 category of vehicles (2017, source: European Alternative Fuels Observatory).

Charging points per 100 000 inhabitants in (peri-)urban areas: Total number of electric vehicle charging points divided by the population in urban areas and/or peri-urban areas. It is assumed that most of the charging points are installed in urban areas. (2018, source: European Alternative Fuels Observatory).

CONNECTING EUROPE