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**Landscape
Review**

**Towards a successful
transport sector in the EU:
challenges to be addressed**

2018

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Executive summary

I Landscape reviews provide a broad description and analysis of policy areas, largely based on publicly available information. This landscape review describes and analyses what the EU does in the field of transport. We focus on infrastructure investments funded from the EU budget and present cross-cutting themes that we identified in recent audits in the five main modes of transport: road, rail, air, inland waterways and maritime. Drawing from our observations and recommendations, we present a horizontal review of the key challenges faced by the development and financing of transport in the EU. In addition to our own reports, this review takes account of reports by other supreme audit institutions (SAI), as well as key EU policy documents, studies, evaluations and data and the views of other EU and international institutions.

II Transport is a strategic sector of the EU economy which directly affects the everyday lives of all EU citizens and transport services provide approximately 11 million jobs. It is a cornerstone of European integration as fully interconnected and sustainable transport networks are a necessary condition for the completion and correct functioning of the European single market.

III EU passenger and freight transport volumes have grown in recent decades and are expected to continue doing so, albeit at a slower pace. Road transport accounts for the bulk of passenger and freight journeys by volume and, at present, the market does not sufficiently incentivise users to shift to other modes of transport, which in general remain economically less competitive.

IV Transport is an area of EU shared competence, meaning that Member States can exercise their own competence unless the EU has formulated common transport policies and strategies. The Treaty on the Functioning of the EU (TFEU) establishes the basis for the Trans-European Transport Network (TEN-T), an integrated multimodal network allowing people and goods to move quickly and easily across the EU. The network comprises two layers. The “core” network, to be completed by 2030, consists of the strategically most important links and nodes across the EU. The “comprehensive” network, to be completed by 2050, has the broader goal of ensuring accessibility and connectivity for all EU regions.

V Responsibility for developing, financing and building transport infrastructure lies mainly with the Member States. EU funding, which must deliver EU added value, can only act as a catalyst and cover a fraction of total needs. A range of EU funding

instruments, worth a total of about €193 billion for the 2007-2020 period, provide support for transport policy.

VI Developing the EU's transport infrastructure requires a considerable financial outlay. The Commission estimates that the total investment needs in this area are about €130 billion per year, with further significant investment needed for maintenance. The TEN-T core network alone will cost an estimated €500 billion for the period from 2021 to 2030; including the comprehensive network and other transport investments increases this amount to about €1.5 trillion.

VII However, since the 2008 economic crisis, reduced investment in transport infrastructure has held back the modernisation of the EU's transport network, with average investment levels well below what is needed. There is a need for significant financial resources to meet the TEN-T objectives on schedule. Given the limited availability of public funds, increased private-sector investment in strategic transport infrastructure is considered essential.

VIII The rate of infrastructure development varies across the EU, with the quality and availability of infrastructure still lagging behind, particularly in eastern regions. While the TEN-T core networks are already complete or close to completion in some Member States, others still have a lot to do.

IX The Commission has recognised that the successful coordinated deployment of intelligent transport management systems, which is currently ongoing, is vital to the achievement of a pan-European, co-modal and truly integrated transport system. Moreover, automation, digitalisation and shared mobility are rapidly expanding trends that have the potential to make transport systems more efficient. However, new technologies and mobility patterns also bring challenges relating to the suitability of the legislative framework, privacy protection, safety, liability and data security.

X The Commission has been active in supporting the opening and liberalisation of the internal transport market. Here too, though, some challenges remain, particularly in rail and air traffic management.

XI Transport accounts for approximately a quarter of all greenhouse gases (GHG) emissions in the EU. As transport emissions started increasing again since 2014, the sector is becoming one of the main challenges to the EU's overall decarbonisation goals.

XII While progress has been made in infrastructure development and the opening of the internal transport market, and there are proposed measures to accelerate the decarbonisation of transport, the EU still faces challenges to:

- match relevant and achievable transport objectives and priorities with available resources;
- establish effective enforcement tools at EU level to ensure Member States' infrastructure decisions are aligned with EU priorities more closely, paying particular attention to cross-border sections;
- focus EU funding on priorities with the highest EU added value;
- improve the planning, implementation and monitoring of EU-funded projects;
- ensure that infrastructure is adequately maintained and sustainable;
- enhance efforts to shift more goods off roads.

Aim and approach of this landscape review

01 This landscape review describes and analyses what the EU does in the area of transport policy. We focus on infrastructure investments funded from the EU budget and present cross-cutting themes that we identified in recent audits in the five main modes of transport: road, rail, air, inland waterways and maritime¹. The ECA has published 13 special reports in this area over the past eight years (see *Annex I*). Drawing from our observations and recommendations, we present a horizontal review of the key challenges faced by the development and financing of transport in the EU. The withdrawal of the United Kingdom from the EU is likely to impact upon the planning and implementation of EU transport policies. However, given the negotiations were still ongoing at the time of publication of this document, and concrete implications are uncertain, we decided not to include this aspect in the current landscape review.

02 The ECA's landscape reviews provide a broad description and analysis of EU policy areas, largely based on our previous work and publicly available information. A landscape review is not an audit: it does not use new audit work or present new audit findings or recommendations. However, it may present conclusions and recommendations from previously published reports. The Commission's replies to our findings and recommendations in the reports quoted in this document were published with those reports and are available on our website.

03 In addition to our own reports, in this review we refer to reports by other supreme audit institutions (SAIs) and key EU transport policy documents, studies, evaluations and data. We also interviewed representatives from the European Commission, the European Parliament, the European Investment Bank (EIB) and the Organisation for Economic Co-operation and Development (OECD). We maintained regular dialogue with the Commission during the review process and, as far as possible, have taken into account their comments on the contents of this landscape review.

¹ Other relevant aspects of transport such as passenger rights were not included in this review, but have been assessed in our recently published Special Report No 30/2018 "EU Passenger rights are comprehensive but passengers still need to fight for their protection" (<http://eca.europa.eu>).

04 By providing clear and accessible information to stakeholders and interested parties, this landscape review aims to encourage stakeholders to improve actions and/or co-ordinate them better in order to add value to the EU's efforts to meet its transport policy objectives.

05 The review is structured as follows:

- (a) **Part I** provides an overview of the EU's main policy objectives for the transport sector, the underlying governance framework and the scale and availability of the necessary funding;
- (b) **Part II** describes the state of play in key areas of the EU transport sector;
- (c) **Part III** presents cross-cutting issues and key challenges which we consider to be of continuing importance.

Part I: Overview of the transport sector in the EU

Key facts about the transport sector in the European Union

06 Transport is a strategic sector of the EU economy, with transport services accounting for about 5 % of the EU's gross value added² and 5.2 % (or around 11 million persons) of all jobs in 2016. It directly affects the everyday lives of all EU citizens and ensures the flow of goods to consumers from more than 11 million EU producers and manufacturers³. This makes good transport systems a cornerstone of European integration. Well thought-out, sustainable and fully interconnected transport networks are a necessary condition for the completion and correct functioning of the European single market.

07 Efficient transport services and infrastructure are necessary to exploit the economic strengths of all EU regions, to support the internal market and growth and to promote economic, territorial and social cohesion. Given its central role, transport also has close ties to policy areas such as the environment, jobs and growth, competition, social policies and digitalisation.

Key EU policy objectives for the transport sector

08 EU transport policy is set out in the Treaty on the Functioning of the EU (TFEU)⁴. It was one of the first areas in which the EU stated its intention to create a common market, in other words the opening-up of transport networks and establishment of the freedom to provide transport services.

09 The key documents for defining the objectives of EU transport policy are the white papers which the Commission publishes approximately every ten years⁵. The

² The value of goods and services produced in an area, industry or sector of an economy.

³ European Commission, *"Delivering TEN-T Facts & figures"*, September 2017, p. 5.

⁴ Article 4(2)(g) and Title VI.

⁵ COM(1992) 494 final of 2.12.1992; COM(2001) 370 of 12.9.2001; and COM(2011) 144 of 28.3.2011, *Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system*.

most recent white paper, that of 2011, sets a roadmap with ten key goals (see [Annex II](#)) for the establishment of a single European transport area with a competitive and resource-efficient transport system.

10 A number of strategic papers⁶ and policy documents complement and build on the 2011 white paper priorities, both for individual transport modes and from a cross-cutting perspective.

11 In order to develop an integrated multimodal network allowing people and goods to move quickly and easily across the EU, the TFEU (see Title XVI) also laid the basis for the Trans-European Transport Network (TEN-T). The Commission published the TEN-T guidelines in 1996 as the basis for developing TEN-T policy. They have been frequently amended, followed by a regulation in 2013⁷. The regulation set completion deadlines for the network's 'core' (2030) and 'comprehensive' (2050) layers (see [Table 1](#)) and, importantly, moved from an approach based on individual priority projects to that of a multimodal EU-wide corridor network. Projects are now planned within the framework of corridor plans embracing all transport modes under 12 European coordinators appointed by the Commission to facilitate and supervise the coordinated development of the TEN-T core network corridors.

⁶ For example: Europe 2020 - *A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final; *A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy*, COM(2015) 80 final, European Strategy for Low Emission Mobility, COM(2016) 501 final (2016); *An aviation strategy for Europe*, COM(2015) 598 final; *Aviation: Open and Connected Europe*, COM(2017) 286 final; European Strategy on Cooperative Intelligent Transport Systems, COM(2016) 0766 final; Strategic goals and recommendations for the EU's maritime transport policy until 2018, COM(2009) 0008 final; Europe on the move packages-*An agenda for a socially fair transition towards clean, competitive and connected mobility for all Europe*, COM(2017) 0283 final.

⁷ Regulation (EU) No 1315/2013 of 11 December 2013 on Union guidelines for the development of the trans-European transport network (OJ L 348, 20.12.2013, p. 1).

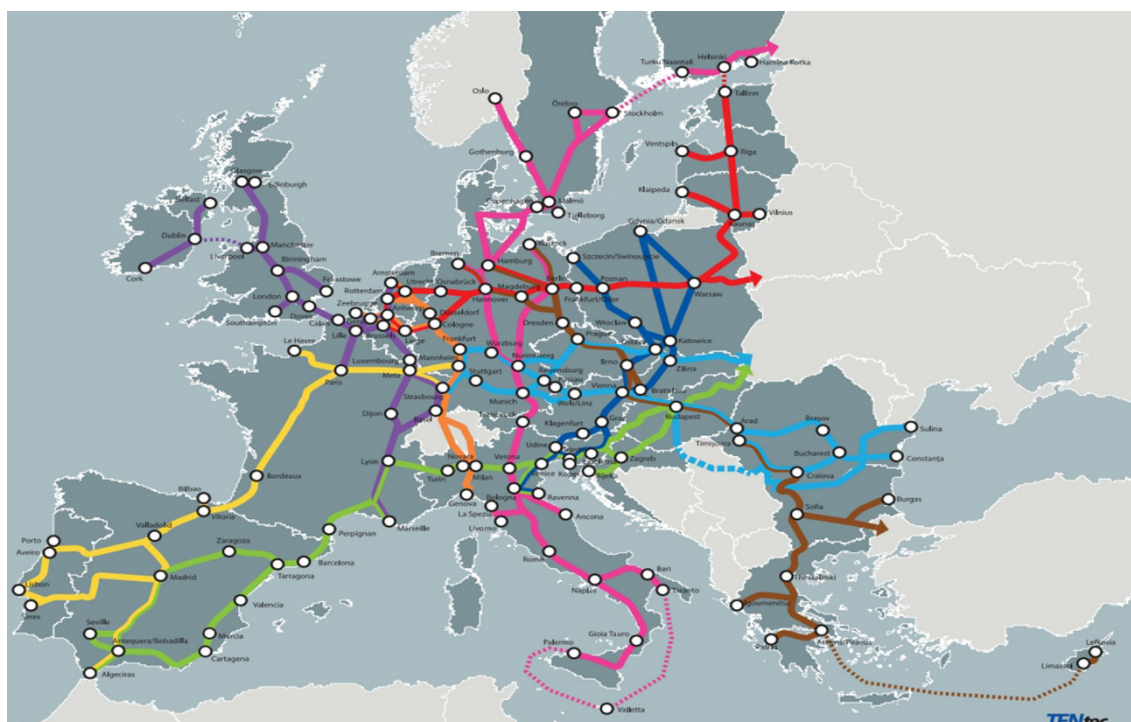
Table 1 – Scale of the TEN-T

TEN-T	Core (km)	Comprehensive (km)
Railway lines	50 762	138 072
Roads	34 401	136 706
Inland waterways	12 880	23 506

Source: Commission ex-post evaluation of Cohesion policy programmes for 2007-2013, work package 5.

12 The comprehensive network is designed to ensure accessibility and connectivity for all EU regions. The core network consists of the strategically most important links and nodes in the comprehensive network, organised into nine corridors (see **Figure 1**) and three horizontal priorities (European Rail Traffic Management System (ERTMS), Motorways of the Sea, and Road Safety).

Figure 1 – TEN-T core network corridors



Atlantic, Baltic-Adriatic, Mediterranean, North Sea-Baltic, North Sea-Mediterranean, Orient-East Mediterranean, Rhine-Alpine, Rhine-Danube, Scandinavian Mediterranean

Source: European Commission.

Main stakeholders in the EU transport sector

13 Transport is an area in which the EU and the Member States have shared competence⁸. This means that the EU and the Member States may each legislate and adopt legally binding acts. Member States can pass laws and make rules unless the EU has formulated common transport policies and strategies.

14 The main stakeholders at EU level are the Commission, the European Parliament and the Council (see *Annex III*). As in all EU policy areas, the Commission proposes legislation and implements policy, while the Parliament and the Council enact legislation, generally based on the Commission's proposals.

15 The main stakeholders in Member States are the national, regional and local authorities responsible for transport and investment policy, as well as freight and passenger carriers.

⁸ Article 4(2)(g) and (h) TFEU.

16 Most importantly, millions of citizens and businesses benefit from transport networks and services.

Infrastructure investment needs and availability of funds

17 Responsibility for developing, financing and building transport infrastructure lies mainly with the Member States. EU funding, which must deliver EU added value, can only act as a catalyst and cover a fraction of total needs.

18 Developing the EU's transport infrastructure requires a considerable financial outlay. The Commission estimates the total investment needs in this area (both TEN-T and urban infrastructure) to be about €130 billion per year. Further significant investment is needed for maintenance⁹. It is estimated that the investment needs to develop the core network amount to €500 billion for the period 2021 until 2030. Including the comprehensive network¹⁰ and other transport investments increases the figure to about €1.5 trillion¹¹.

19 Since the 2008 economic crisis, however, reduced investment in transport infrastructure has held back the modernisation of the EU's transport network¹². According to the Commission's latest TEN-T progress report¹³, average investment levels in the EU have been well below €100 billion per year since the beginning of the crisis.

20 A range of EU funding instruments, worth a total of €193 billion for the 2007-2020 period, provide support for transport policy (see **Table 2**). This support is implemented in both direct and shared management modes¹⁴. The two main

⁹ European Commission, *Europe on the Move: An agenda for a socially fair transition towards clean, competitive and connected mobility for all*, COM(2017) 283 final of 31.5.2017, p. 7.

¹⁰ The 2013 TEN-T regulation set 2050 as a completion deadline for the comprehensive network.

¹¹ European Commission, *"Delivering TEN-T: Facts & figures"*, September 2017.

¹² European Commission, *Transport in the European Union Current Trends and Issues – 2018*, p. 12.

¹³ Progress report on the implementation of the TEN-T network in 2014-2015, COM(2017) 327 final, 19.6.2017, p. 3.

¹⁴ Under direct management (e.g. CEF, Horizon) the Commission selects contractors, awards grants, transfers funds and monitors co-funded activities. Under shared management (e.g.

instruments are the Connecting Europe Facility (CEF)¹⁵ and the European Structural and Investment Funds (ESIFs). The first (directly managed by the Commission) prioritises the TEN-T core network, cross-border connections, bottleneck removal and interoperability projects, while the second (implemented under shared management) expands these priorities to include enhancing regional mobility and connecting secondary and tertiary nodes to TEN-T infrastructure¹⁶.

Table 2 – EU transport budget allocations for the 2007-2020 period (€ billion)

Instrument	2007-2013	2014-2020	Total
ERDF and Cohesion Fund/ESIFs	81.8	68.5	150.3
TEN-T	8.0	n.a.	8.0
Marco Polo	0.5	n.a.	0.5
CEF-Transport	n.a.	24.1 ²	24.1
FP7 ¹ -Transport	4.2	n.a.	4.2
Horizon 2020-Transport	n.a.	6.3	6.3
Total	94.5	98.9	193.4

¹ Seventh Framework Programme for Research and Technological Development.

² Including €11.3 billion transferred from the Cohesion fund.

Source: ECA based on publicly available data.

21 Most EU funding (78 %) for transport during the two programming periods from 2007 to 2020 falls under shared management. However, the share of funding managed directly by the Commission is increasing, from 13 % for 2007-2013 to 31 % for 2014-2020.

ESIFs), the Commission delegates implementation of part of the budget to the Member States while retaining final responsibility.

¹⁵ See Regulation (EU) No 1316/2013 of 11 December 2013 establishing the Connecting Europe Facility.

¹⁶ Around 47 % of Cohesion Fund spending in the 2007-2013 period was channelled to TEN-T projects. See European Commission, Transport - Final Report - Work Package 5 - Ex post evaluation of Cohesion Policy programmes for 2007-2013, focusing on the ERDF and the Cohesion Fund, 2016, p. 97.

22 Transport has been the biggest spending area for the ERDF and the Cohesion Fund in both programming periods (24 % of the total allocation for 2007-2013 and 20 % for 2014-2020). Nearly half of ERDF and Cohesion Fund expenditure on transport for 2007-2020 has been allocated to roads (see [Table 3](#)).

Table 3 – ERDF and Cohesion Fund budget allocations by transport sector for 2007-2020 (€ billion)

Sector	2007-2013	% of total	2014-2020	% of total
Road	42,6	52 %	30,0	44 %
Rail	23,1	28 %	18,6	27 %
Urban transport	8,2	10 %	12,5	18 %
Ports	3,1	4 %	2,0	3 %
Multimodal transport	1,8	2 %	2,2	3 %
Intelligent transport systems (ITS)	1,0	1 %	2,1	3 %
Inland waterways	0,4	1 %	0,7	1 %
Air	1,6	2 %	0,4	1 %
Total transport	81,8	100 %	68,5	100 %

Source: ECA, based on data provided by the Commission.

23 The CEF (2014-2020 period only) had granted €22.3 billion (about 93 % of the total CEF-Transport budget) to projects as of December 2017 (see [Table 4](#)). Most of the funded projects are on the core network corridors (79 %) and concern sustainable modes of transport such as railways and inland waterways.

Table 4 – Funds granted under CEF

Sector	Total granted to projects (December 2017, € billion)	% of total
Rail	16,4	74 %
Inland waterways	1,7	8 %
Road	1,7	8 %
Air	1,3	6 %
Maritime	0,9	4 %
Multimodal	0,3	1 %
Total	22,3	100 %

Source: ECA based on data provided by the Commission.

24 At the time of drafting, the budget allocations for the 2021-2027 multiannual financial framework (MFF) had not yet been adopted. The Commission's proposal for a

CEF regulation¹⁷ would earmark €30.6 billion for transport, including a €11.3 billion contribution from the Cohesion Fund. The Commission's proposal for a 2021-2027 regulation setting out common provisions for seven shared management funds¹⁸ envisages a total of €242 billion for the ERDF and Cohesion Fund, but gives no allocations by sector, at this stage.

25 The OECD has pointed out to the importance of increased private sector investment in strategic transport infrastructure to meet the shortfall in the availability of public funds¹⁹. The EU uses financial instruments such as loans and guarantees (see below) to attract private investment in transport.

- (a) The CEF debt instrument, which uses the EU budget to provide guarantees mainly for EIB-financing, has supported 10 transport projects mobilising investment worth more than €13 billion.
- (b) The EIB Group and the Commission jointly launched the European Fund for Strategic Investments (EFSI) in 2015 to help overcome the current investment gap in the EU. So far, it has provided financing of €5.6 billion to 45 projects contributing to the transport objectives²⁰.
- (c) In addition, the EIB has provided approximately €140 billion in loans for transport projects in the period 2007-2018²¹.

¹⁷ Proposal for a regulation establishing the Connecting Europe Facility and repealing Regulations (EU) No 1316/2013 and (EU) No 283/2014, COM(2018) 438 final, 6.6.2018.

¹⁸ Proposal for a regulation laying down common provisions on the European Regional Development Fund, the European Social Fund Plus, the Cohesion Fund, and the European Maritime and Fisheries Fund and financial rules for those and for the Asylum and Migration Fund, the Internal Security Fund and the Border Management and Visa Instrument, COM(2018) 375 final, 29.5.2018.

¹⁹ OECD, *Strategic Transport Infrastructure Needs to 2030: Main Findings*, OECD Publications, Paris, 2011, p. 6.

²⁰ EFSI project list as of October 2018 - signed projects (<http://www.eib.org/en/efsi/efsi-projects/index.htm>).

²¹ EIB financed projects as of October 2018 (<http://www.eib.org/en/projects/loan/list/index>).

Part II: State of play in key areas of the EU transport sector

Current trends in transport use

Transport volumes have been steadily rising and are expected to continue doing so

26 Passenger and freight transport volumes in the EU have been steadily rising in recent decades²², from 5 335 billion passenger-kilometres in 1995 to 6 802 billion in 2016 for passenger transport and from 2 846 billion tonne-kilometres in 1995 to 3 661 billion in 2016 for freight. The Commission estimates that they will continue to grow, albeit at a slower pace than in the past. It projects an increase of 42 % for passenger transport activity and 60 % for inland freight between 2010 and 2050²³. The projected rise, for international maritime transport is still greater, at 71 % over the same period.

27 The increase in transport volumes may lead to capacity challenges in the EU for some transport modes. Congestion is already a major environmental and economic concern which currently costs the EU an estimated €140 billion each year²⁴. Congestion costs are estimated to increase by more than 40 % by 2050, relative to 2010²⁵.

²² EC (2018), *EU Transport in Figures – statistical pocketbook 2018*, https://ec.europa.eu/transport/facts-fundings/statistics/pocketbook-2018_en.

²³ Europe on the Move: An agenda for a socially fair transition towards clean, competitive and connected mobility for all COM(2017) 283 final, p. 4.

²⁴ https://ec.europa.eu/transport/sites/transport/files/connect-to-compete-people_2016_en.pdf.

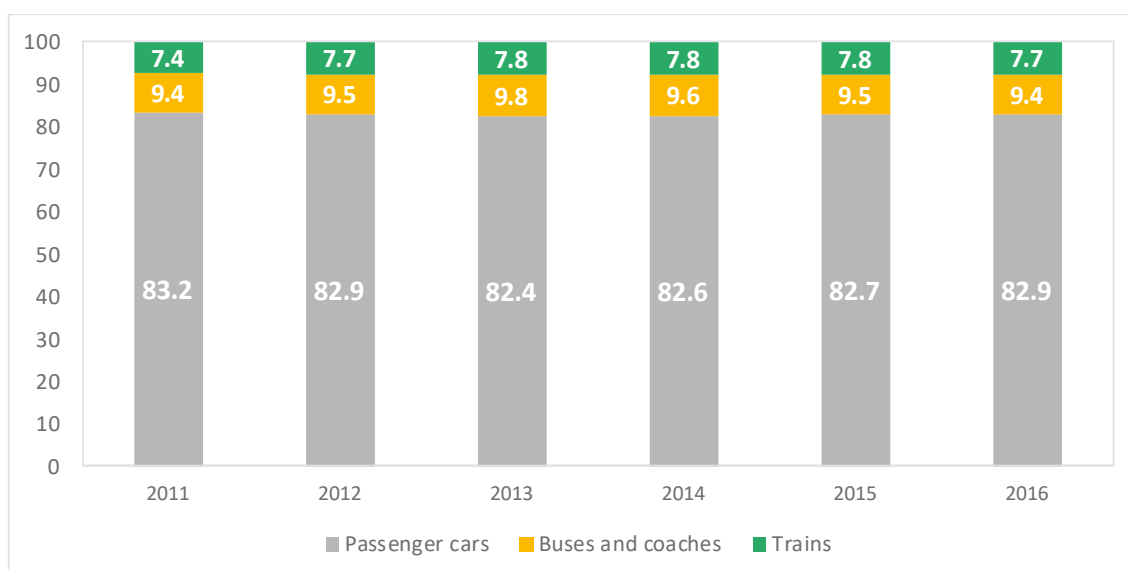
²⁵ Impact assessment accompanying the Proposal for a Directive of the European Parliament and of the Council amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, SWD(2017) 180 final of 31.5.2017, Annex 4, p. 38.

Road transport is preferred for passengers and goods

28 Road transport accounts for the bulk of passenger and freight journeys by volume²⁶. Car travel is the dominant passenger mode, with around 71 % of all transport activity in passenger-kilometres, followed by air, bus/coach and rail transport with about 10 %, 8 % and 7 % respectively. The roads also take 49 % of EU freight transport activity, followed by maritime transport and rail²⁷ with about 32 % and 11 % respectively.

29 The predominance of road transport is even more striking when we look only at inland (excluding maritime and air) passenger and freight transport. **Figure 2** shows that the majority of passenger kilometres are travelled in cars.

Figure 2 – Percentage of passenger-km travelled in cars, buses and trains in the EU 28



Source: Eurostat statistical data (as of June 2018). Figures may not add up to 100 % due to rounding.

30 Despite the 2011 white paper objective of shifting 30 % of road freight over 300 km to other modes, such as rail or waterborne transport, by 2030, and more than 50 % by 2050, and despite the EU's increased emphasis on environmentally friendly

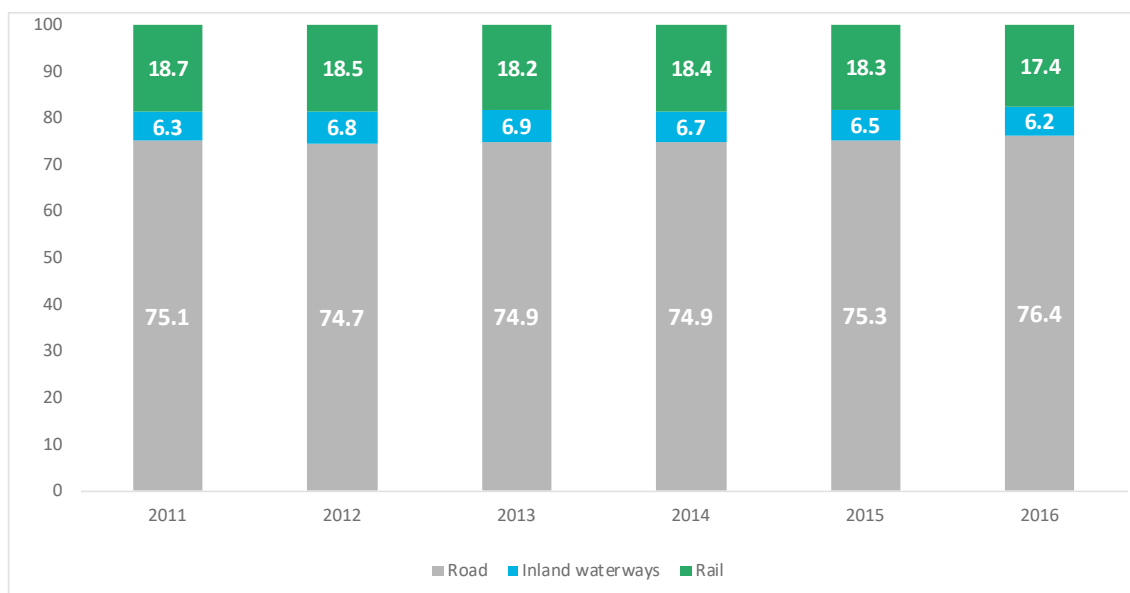
²⁶ EC (2018), *EU Transport in Figures – statistical pocketbook 2018*

https://ec.europa.eu/transport/facts-fundings/statistics/pocketbook-2018_en.

²⁷ Rail freight performs differently in other parts of the world, where it is often the predominant mode of transport, reaching market shares of 40 % and more (e.g. in the United States, Australia, China, India, and South Africa). See our Special Report No 8/2016 “Rail freight transport in the EU: still not on the right track” (<http://eca.europa.eu>).

transport modes, the share of road use for inland freight transport has actually increased - from 75.1 % in 2011 - to 76.4 % in 2016 (see [Figure 3](#)).

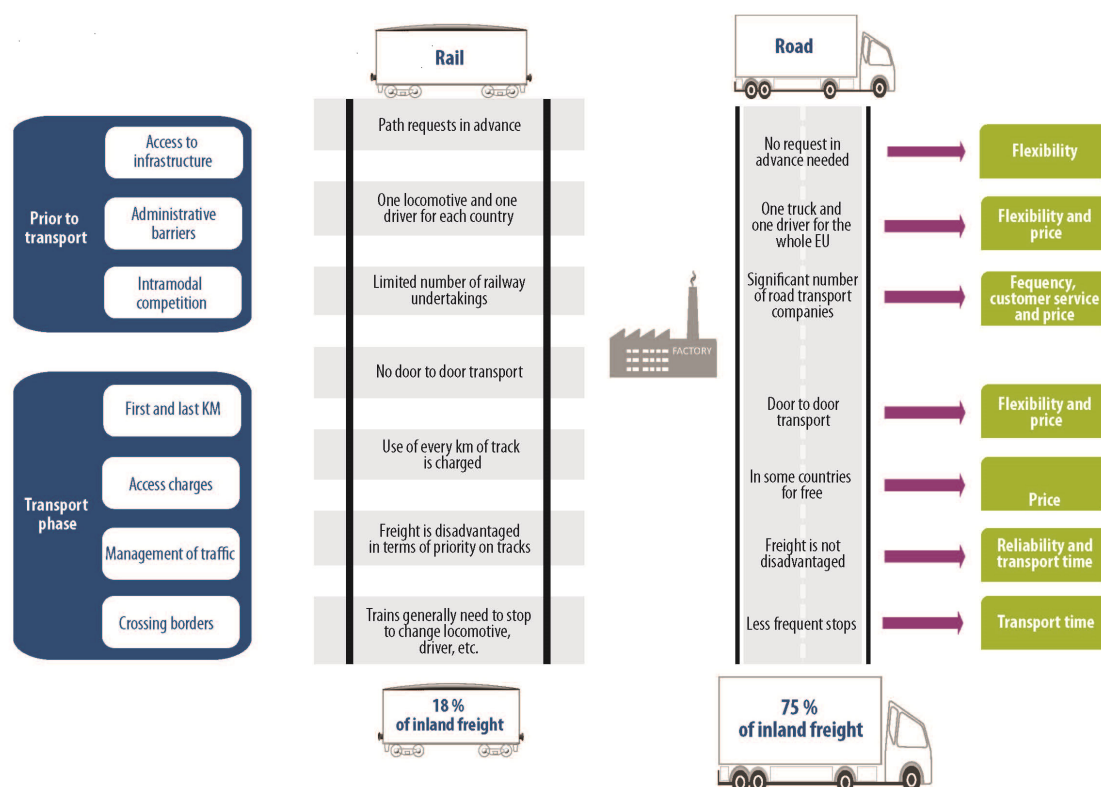
Figure 3 – Percentage of freight tonne-km transported by road, inland waterways and rail in the EU-28



Source: Eurostat statistical data (as of June 2018). Figures may not add up to 100 % due to rounding.

31 Road transport is the preferred way of sending goods within the EU, as it has the advantages of flexibility, reliability, price, time and door-to-door delivery. In 2016, the ECA published a special report on rail freight transport in the EU. We compared the challenges faced by freight transporters using rail to those faced when using road. At present, the market does not sufficiently incentivise users to shift from road to other modes of transport, which remain economically less competitive. [Figure 4](#) shows some of the main reasons rail compares unfavourably with road for freight.

Figure 4 – The challenges facing rail compared to road for freight



Source: ECA Special Report No 8/2016 “Rail freight transport in the EU: still not on the right track”.

32 Transport generates negative externalities such as accidents, GHG emissions, air pollution and noise that involve a social and economic cost. Before factoring in congestion, these negative external effects of transport were estimated to cost around 4 % of EU GDP in 2011. As also indicated in our recent report on high-speed rail (HSR)²⁸, there is ongoing debate in the EU about charging systems (particularly road charging) that look at both user-pays and polluter-pays principles across the various transport modes, demonstrating awareness of the need for a thorough analysis of the potential drawbacks and benefits of internalising external costs. The internalisation of external costs means that users bear the costs they create and thus have an incentive to change their behaviour in order to reduce those costs. Internalisation would have significant implications for transport networks, the cost to final consumers and the use of transport infrastructure. The Commission is currently carrying out a study on the internalisation of external costs (“Sustainable transport infrastructure charging and internalisation of transport externalities”), with a view both to assessing the extent to which the user-pays and polluter-pays principles are already applied to different

²⁸ Special Report No 19/2018 “A European high-speed rail network: not a reality but an ineffective patchwork” (<http://eca.europa.eu>)

modes in the Member States, and to shaping a contribution to the debate. The results of the study should be available by mid-2019.

33 Increasing the use of multimodal transport, which has been one of the EU's main transport policy objectives for many years, can play a part in the modal shift away from road-only transport operations. Multimodality refers to the use of different means of transport during the same journey. Despite some progress in recent years, multimodal transport is still not widespread in Europe²⁹. The main EU legal instrument that directly supports multimodal transport is the combined transport directive of 1992³⁰, which was being amended at the time of writing. Multimodal projects are mainly supported through the ERDF and Cohesion Fund, with an allocated amount of around €4 billion during the period from 2007 to 2020. The Commission announced 2018 as the 'Year of Multimodality' - a year during which it intended to raise the importance of multimodality for the EU transport system.

Intelligent transport management systems: an intrinsic part of the future of transport

34 Intelligent transport management systems refer to a range of digital traffic management and information systems covering several modes of transport (see **Box 1**). The Commission has recognised that the successful coordinated deployment of such systems is vital to the achievement of a pan-European, co-modal and truly integrated transport system and forms an intrinsic part of the future of transport³¹. Deployment is ongoing with approximately €3.1 billion allocated from the ERDF and

²⁹ According to the Commission's SWD(2017) 362 final *Impact Assessment accompanying the Proposal for a Directive of the European Parliament and of the Council amending Directive 92/106/EEC on the establishment of common rules for certain types of combined transport of goods between Member States*, intermodal transport accounted in 2015 for 18 % of freight transport within the EU (excluding air and pipeline transport and maritime transport with non-EU countries), having grown annually by an average of 3.5 % in the five preceding years.

³⁰ 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 L368, 17.12.1992, p. 38).

³¹ European Commission, *The implementation of the 2011 White Paper on Transport "Roadmap to a Single European Transport Area – towards a competitive and resource-efficient transport system" five years after its publication: achievements and challenges*, SWD(2016) 226 final of 1.7.2016, pp. 24 - 25.

Cohesion Fund for 2007-2020 and an additional €3 billion granted under the CEF as of the end of 2017.

Box 1

Intelligent transport management systems

- Intelligent transport systems (ITS) apply information and communication technologies in the field of road transport, including infrastructure, vehicles and users, as well as traffic and mobility management, and interfaces with other modes of transport.
- The European Rail Traffic Management System (ERTMS) project aims to replace Europe's many national train control and command systems with a single set-up.
- The Single European Sky ATM Research (SESAR) project aims to improve air traffic management (ATM) performance by modernising and harmonising ATM systems through the definition, development, validation and deployment of innovative technological and operational ATM solutions.
- The River Information Services (RIS) was set up to enable swift electronic data transfer between water and shore through the exchange of predictive and real-time information.
- The primary purpose of the Vessel Traffic Management Information System (VTMIS) is to enhance safety and minimise the environmental impact of shipping accidents.

35 Furthermore, the European Global Navigation Satellite System (Galileo) aims to provide improved positioning and timing information, which should have significant positive implications for transport services and users. As transport has been increasingly reliant on the availability of satellite signals for precise localisation, the 2011 white paper named deployment of Galileo as one of its objectives. Galileo was launched as the EU equivalent of the American GPS and Russian GLONASS so that the EU could be autonomous in this strategic sector. The system has an estimated total cost of around €10.5 billion and consists of 30 satellites and the associated ground infrastructure. The deployment of Galileo is ongoing; the Commission expects it to conclude by the end of 2020.

Emerging trends in transport

36 Automation, digitalisation and shared mobility are rapidly expanding trends (see **Box 2**) that have the potential to make transport systems more efficient, thus improving road safety³², reducing environmental impacts and easing congestion.

Box 2

Emerging trends in transport

- Automation: at least some vehicle functions are performed automatically without any input from the driver/operator.
- Digitalisation: data exchange between different actors in the transport system so that supply and demand can be matched in real time, leading to a more efficient use of resources. Digitalisation could help create a truly multimodal transport system by combining all modes of transport in a single, smoothly functioning mobility service for people and goods.
- Shared mobility: shared use of vehicles, such as bike or car-sharing.

37 Fully automated vehicles are now being tested, and it is conceivable that technological developments will ultimately make them a common sight on the roads. Fully automated driving will require advanced telecommunications and satellite infrastructure and services for positioning and communication between vehicles. Once Galileo is successfully deployed it will provide the necessary services to meet those needs.

38 However, new technologies and mobility patterns also bring challenges relating to the suitability of the legislative framework, privacy protection, safety, liability and data security³³. The 2018 EU strategy for mobility of the future³⁴ contains Commission proposals to address these major sources of concern.

³² While significant progress in recent decades (fatalities slashed from almost 55 000 in 2001 to 25 650 in 2016) has made the EU the world's safest road transport region, the pace of improvement has stalled for the past four years. Further efforts will be needed to achieve the white paper objective of 'zero fatalities' by 2050.

³³ SWD(2016) 226 final, p. 38.

³⁴ European Commission, *On the road to automated mobility: An EU strategy for mobility of the future*, COM(2018) 283 final of 17.5.2018.

39 The adaptation of infrastructure to new mobility patterns and the deployment of new infrastructure for clean, alternative fuels pose additional challenges that require fresh investment and a revised approach to the design of networks and business models. Charging infrastructure is essential to facilitate the development of electromobility, in particular the uptake of electric vehicles³⁵. In 2013, the EU launched its clean fuels strategy³⁶, which is intended to ensure a network of alternative fuel stations (including electric charging points) with standardised design and use.

Infrastructure development

Despite progress in the development of transport infrastructure in the EU, challenges remain

40 Seamless door-to-door mobility for people and goods in the EU depends on an advanced and well-functioning transport infrastructure. The key building block in the development of the European transport system is the completion of the TEN-T. Other layers of the transport system, such as urban transport, are also important, as this is where many of the sector's negative externalities (e.g. accidents, pollution and noise) are most directly felt.

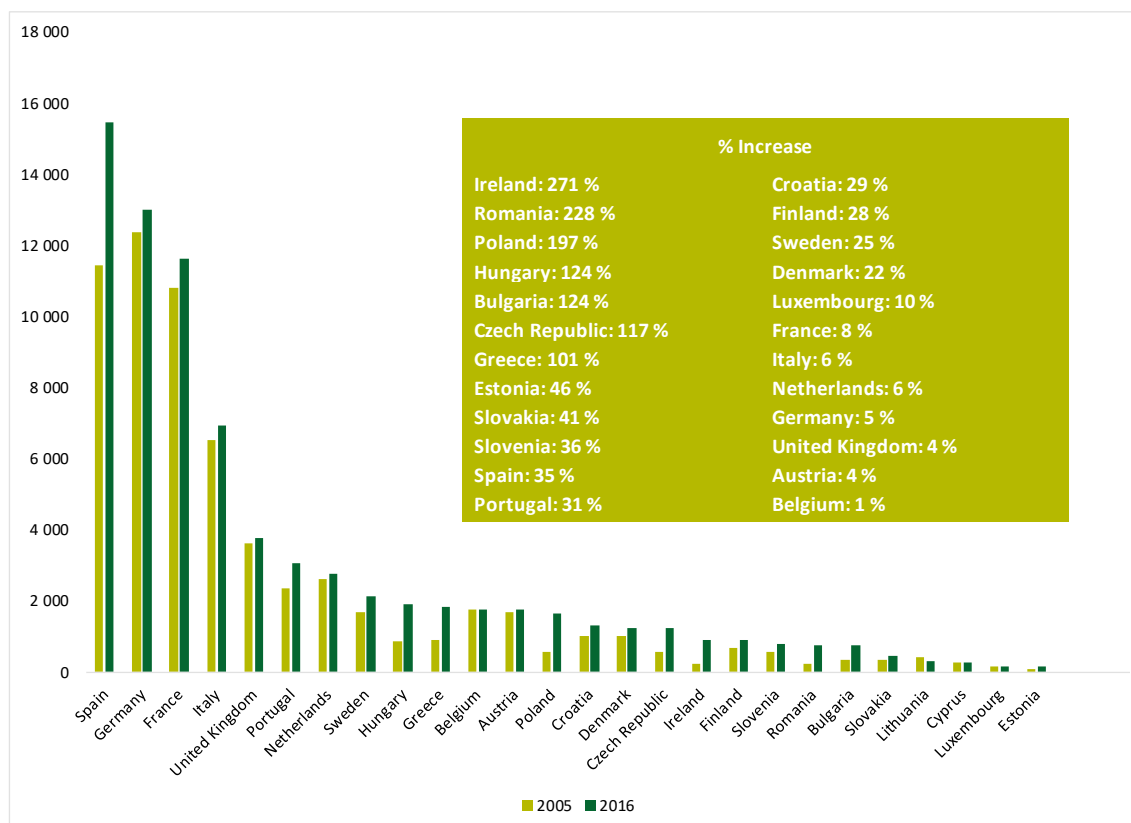
41 The EU's expansion from 15 to 28 Member States brought changes to logistics chains and geographical patterns of trade, and raised the structural challenge of rapidly developing the EU's transport infrastructure, particularly in the new Member States.

42 Being the most flexible mode of transport, road has adapted most easily to the new reality, while rail, for example, requires more effort to modernise and develop its networks and links. **Figure 5** and **Figure 6** illustrate the growth in the length (both in absolute value and in percentage) of EU motorways and railways in the decade to 2016.

³⁵ "When compared to the total stock of passenger cars, the total share of Plug-in Electric Vehicles (PEVs) was only around 0.3% in 2017 in the EU", European Parliament, Research for TRAN Committee - Charging infrastructure for electric road vehicles, p. 13.

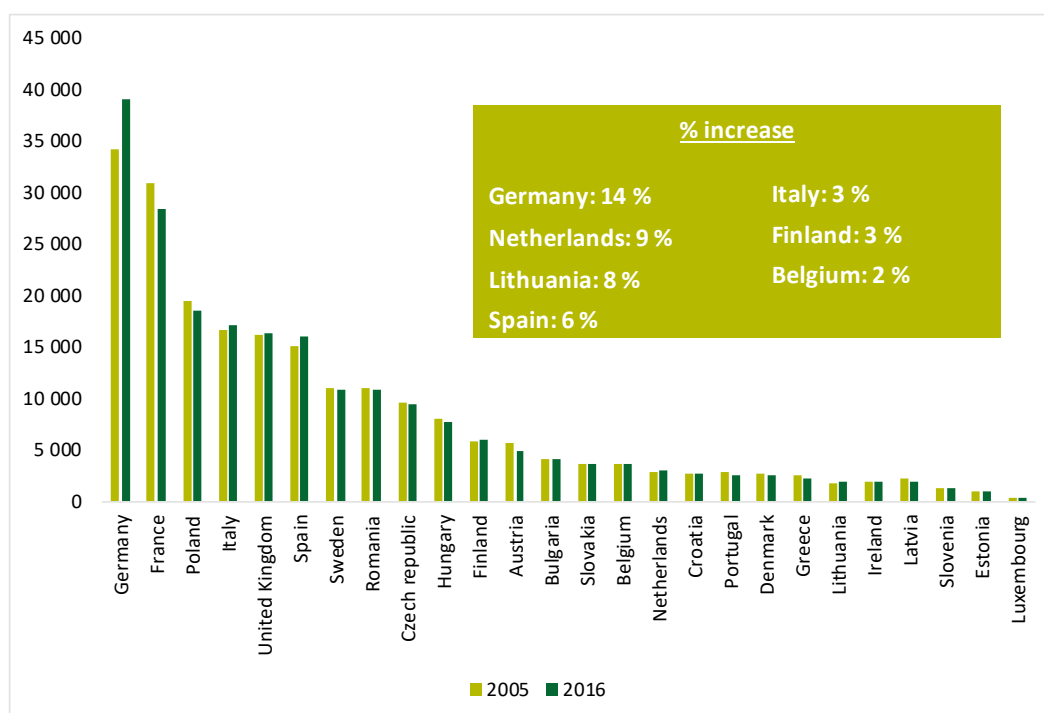
³⁶ Clean Power for Transport: A European alternative fuels strategy, COM(2013) 17 final of 24.1.2013.

Figure 5 – Motorway lengths 2005-2016 in the EU 28 (in km)



Source: ECA, based on European Commission (2018), *EU Transport in Figures - statistical pocketbook 2018*. No data for Malta and Latvia.

Figure 6 – Railway lengths 2005-2016 in the EU 28 (in km)



Source: ECA, based on European Commission (2018), *EU Transport in Figures - statistical pocketbook 2018*. Cyprus and Malta have no rail network.

43 The rate of infrastructure development varies across the EU, with the quality and availability of infrastructure still lagging behind particularly in eastern regions³⁷ (fewer motorways and high-speed rail lines, conventional rail in need of upgrading and affected by longer travel times than in Western Europe). Moreover, missing links and bottlenecks still feature along the EU transport network, where they present serious obstacles to traffic flows. Border crossings are particularly affected in this regard. For example, 149 (41 %) of the 365 cross-border rail connections identified by the Commission are non-operational today³⁸.

44 While some Member States have already completed, or are close to completing, their sections of the TEN-T core network, others still have a lot to do³⁹. In 2017, in addition to the regularly updated corridor work plans⁴⁰, the Commission issued a progress report⁴¹ on the implementation of the TEN-T in 2014 and 2015. The report concluded that there has been progress achieved, but overall, it can be assumed that in most cases significant improvements are still required and significant investment needed to reach the TEN-T objectives.

45 Significant EU investment⁴² has helped to improve connectivity and accessibility. For example, during the 2007-2013 period cohesion funding supported the construction of 3 875 km of new roads (47 % of them TEN-T) and the relaying of over 23 000 km, a total length equal to about 10 % of the main road network in the 15 eligible Member States⁴³. The result was improved road access for millions of

³⁷ European Commission, *Transport in the European Union Current Trends and Issues – 2018*, p. 13.

³⁸ Most missing links are not situated along a TEN-T corridor or in the comprehensive network. See the Commission's 2018 *Comprehensive analysis of the existing cross-border rail transport connections and missing links on the internal EU borders*, p. 13.

³⁹ See DG MOVE Transport scoreboard for the latest available data (as of year-end 2015) (https://ec.europa.eu/transport/facts-fundings/scoreboard_en).

⁴⁰ https://ec.europa.eu/transport/themes/infrastructure/downloads_en.

⁴¹ <https://ec.europa.eu/transport/sites/transport/files/com20170327-progress-report-tent-2014-2015.pdf>.

⁴² Investment in transport accounted for over 40 % of total government capital expenditure on transport over the 2007-2013 period in the EU-12; see the *Commission's Seventh report on economic, social and territorial cohesion, 2017*, p. 198.

⁴³ Member States eligible for Cohesion funding are Bulgaria, Czech Republic, Estonia, Greece, Croatia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Romania, Slovenia and Slovakia.

people and reduced travel times⁴⁴. Cohesion funding was also used to build and relay 3 405 km of railway lines (49 % TEN-T), or just over 2 % of the entire railway network⁴⁵.

46 To continue closing the gap between Member States, significant EU expenditure has also been planned during the 2014-2020 period⁴⁶:

- (a) Around €70 billion is planned in EU co-funding from the ESIFs: €34 billion for TEN-T infrastructure and €36 billion for transport investment projects which connect to or complement TEN-T projects. This investment would cover 977 km of inland waterways, the building of 3 414 km and the relaying of 9 742 km of roads, the construction of 1 136 km and the upgrading of 9 680 km of railway lines, and 748 km of new or improved tram and metro lines.
- (b) In addition, the €24.1 billion CEF-Transport budget (which includes €11.3 billion for Member States eligible for Cohesion funding) focuses mainly on rail projects in the TEN-T core network. The expected results of these projects include, among other things, the removal by 2020 of 243 rail, road and inland-waterways bottlenecks, 3 088 new alternative fuel supply points for road transport, 1 790 km of rail adapted to nominal gauge, 5 788 km equipped with ERTMS, 1 753 km electrified, 2 804 km of freight lines improved and 3 862 km of inland waterways upgraded.

TEN-T requires significant funding – Member State’s levels of indebtedness could be a hindrance

47 Despite already significant levels of national and EU investment, which have contributed to better connectivity and accessibility, much more is still needed to achieve the TEN-T objectives (see [paragraph 17](#)).

48 Responsibility for developing, financing and building transport infrastructure lies mainly with the Member States. At the same time, the EU has agreed that Member

⁴⁴ European Parliament, *Report on the implementation of cohesion policy and the thematic objective of ‘promoting sustainable transport and removing bottlenecks in key network infrastructures’ - Article 9(7) of the Common Provisions Regulation (2017/2285(INI)*, 4.4.2018.

⁴⁵ European Commission, *Transport – Final Report – Work Package 5 - Ex post evaluation of Cohesion Policy programmes 2007-2013, focusing on the ERDF and the Cohesion Fund*, 2016, pp. 3-4, 42, 46.

⁴⁶ European Commission, *Delivering TEN-T - Fact and Figures*, September, 2017.

States' annual general government deficit should not exceed 3 % and that the government debt-to-GDP ratio should not exceed 60 % (the Maastricht criteria⁴⁷). Consequently, although the objectives for completion of the TEN-T appear in a regulation, in some cases national levels of indebtedness may place additional constraints on Member States' investment capacity. In other words, reducing public debt and spending more on public investment, including for transport, can be competing objectives.

49 The OECD recognised this challenge and the need for improved funding and financing arrangements in many countries given the current high levels of deficit and debt and other demands on national budgets⁴⁸.

50 The European Parliament also noted that Member States in economic and budgetary difficulties were unable to co-finance freight projects and took the view that projects carried out as part of the CEF should not be taken into account in the Stability and Growth Pact⁴⁹ (SGP) calculations of public debt⁵⁰.

51 The Commission issued a communication⁵¹ to clarify the use of a certain flexibility embedded in the SGP regarding eligible investments that may under certain conditions

⁴⁷ The euro convergence criteria – also known as the 'Maastricht criteria' – are based on Article 140 TFEU. Member States are required to meet these criteria to enter the third stage of the Economic and Monetary Union and adopt the euro as their currency.

⁴⁸ OECD, *Strategic Transport Infrastructure Needs to 2030: Main Findings*, OECD Publications, Paris, 2011, p. 4.

⁴⁹ An agreement binding on all the EU Member States since 1997 (reformed in 2005 and 2011) concerning implementation of the Maastricht Treaty provisions addressing the sustainability of Member State fiscal policies, essentially by maintaining public deficit and debt at acceptable levels.

⁵⁰ European Parliament *resolution of 19 January 2017 on logistics in the EU and multimodal transport in the new TEN-T corridors* (2015/2348(INI)), point 13.

⁵¹ Commission, *Making the best use of the flexibility within the existing rules of the stability and growth pact*, COM(2015) 12 final, 13.1.2015. Under the 'investment clause', eligible investments are national expenditure on projects co-funded under the Structural and Cohesion policy, Trans-European Networks, the Connecting Europe facility, and the European Fund of Strategic Investments. The conditions to justify a temporary deviation are: GDP growth in the concerned Member States must be negative or well below its potential; the deviation does not lead to an excess over the 3 % deficit reference value and an appropriate safety margin is preserved; investment levels are effectively increased as a

justify a temporary deviation from the existing rules. The application and effectiveness of this investment flexibility is being examined as part of a wider review of the flexibility arrangements⁵².

Internal market

52 In order to achieve a functioning single transport market, the Commission has sought to create fair conditions for competition both within and between modes of transport. The Commission has been active in supporting the opening and liberalisation of the internal transport market; however, some challenges remain, particularly in the rail sector and air traffic management.

53 As regards railways, freight has been open to competition since 2007 and international passenger transport was liberalised in 2010. However, the market liberalisation of railways has been uneven across the Member States. Only a handful of Member States have liberalised their domestic rail passenger markets. New entrants still face discrimination in obtaining access to rail infrastructure and essential service

result; the deviation is compensated within the timeframe of the Member State's Stability or Convergence programme.

⁵² In its Special Report No 18/2018 "Is the main objective of the preventive arm of the Stability and Growth Pact delivered?" (<http://eca.europa.eu>), the Court concluded that the investment clause does not ensure an increase in the public investment-to-GDP ratio and allows non-investment-related spending to continue in the years ahead and recommended to the Commission to discontinue the use of the investment clause in its current form. The Commission did not accept this recommendation and noted that the investment clause is being reviewed as part of the wider review of the SGP flexibility arrangements.

Moreover, in May 2018, the Commission published a review of the flexibility under the SGP (COM(2018) 335 final and SWD (2018) 270 final). The review found that for the Member States that were granted flexibility in the period 2015-2018, the objectives of the structural reform and investment clauses have been reached to some extent. Regarding the investment clause, the review confirmed that the projects eligible for the investment clause were co-funded by the EU. However, the analysis was more mixed as to whether the investment clause led to new investments. The Commission noted that the positive impact of the reforms/investments on fiscal sustainability is meant to unfold over a longer time span than covered by the review and that the impact on public investment volumes is complex to assess with precision.

facilities, which are often owned and operated by incumbents⁵³. In 2016 the EU adopted the “fourth railway package”⁵⁴ which aims to further liberalise the passenger market and lift barriers to interoperability, with a calendar for enforcement starting June 2019.

54 The EU liberalised air travel in 1992, resulting in more competition, a wider choice of travel opportunities and substantially increased traffic. The number of daily flights in the EU rose from 10 000 to 29 000 between 1992 and 2017 and annual air passenger numbers grew from 360 million to more than one billion between 1993 and 2017. Today, European aviation represents 26 % of the world market, contributing €510 billion annually to Europe's GDP, and supporting 9.3 million jobs in Europe.

55 Although inherently international, air traffic has traditionally been managed nationally and in a fragmented and monopolistic environment. These features have contributed to higher air traffic management costs, which are borne by airspace users. The Commission's response was to launch the Single European Sky (SES), an initiative intended to improve the overall performance of air traffic management by shifting a number of duties from the intergovernmental domain to the EU. However, European airspace management remains fragmented⁵⁵. In 2013, the Commission proposed improvements to the SES framework (the “SES2+” legislative package⁵⁶). However, at the time of drafting, the package was still awaiting legislative approval by the European Parliament and the Council, thus hindering the introduction of a coherent up-to-date framework at EU level.

⁵³ See European Commission, *Transport in the European Union Current Trends and Issues - 2018*, p. 7 and ECA Special Report No 8/2016 “Rail freight transport in the EU: still not on the right track”.

⁵⁴ The fourth railway package is a set of six legislative texts designed to complete the single market for rail services. Its overarching goal is to revitalise the rail sector and help it to compete with other modes of transport.

⁵⁵ European Commission, *Transport in the European Union Current Trends and Issues - 2018*, p. 9.

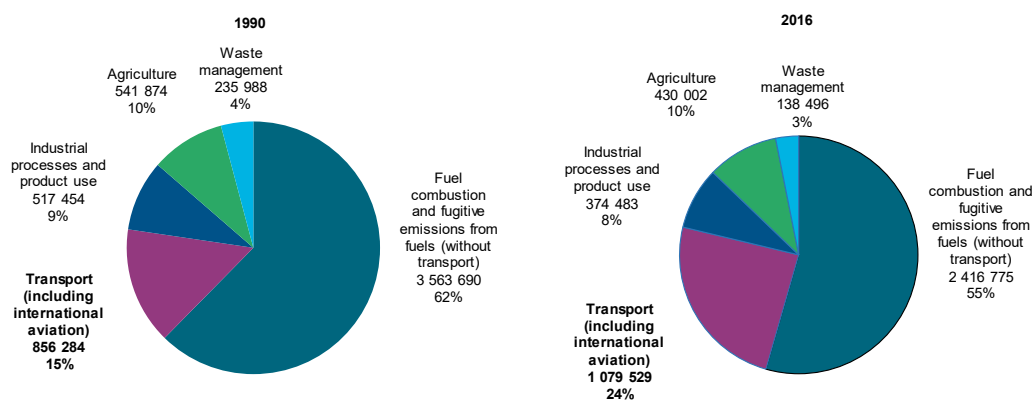
⁵⁶ European Commission, *Proposal for a Regulation of the European Parliament and of the Council on the implementation of the Single European Sky (recast)*, COM(2013) 410 final of 11.6.2013.

Decarbonisation of transport

56 In October 2014, the EU leaders adopted the 2030 climate and energy framework, including a target of at least a 40 % reduction in greenhouse gas (GHG) emissions by 2030 (relative to 1990). In 2015, the EU and all 28 Member States signed the Paris Agreement⁵⁷. Under this agreement, they were requested to submit long-term plans by 2020 showing the efforts by each country to reduce national emissions and adapt to the impacts of climate change. In March 2018, the European Council invited the Commission to present a proposal, by the first quarter of 2019, for a long-term EU strategy to reduce GHG emissions in accordance with the Paris Agreement, taking the national plans into account.

57 **Figure 7** shows that in 2016 transport accounted for approximately one quarter of all GHG emissions in the EU (compared to 15 % in 1990), making it the second largest producer of emissions after the energy supply sector. The 2011 white paper set a target of reducing GHG emissions from transport (excluding international maritime transport) by at least 60 %, compared with 1990 levels, by 2050, and an interim target of around 20 %, compared with 2008 levels, by 2030.

Figure 7 – GHG emissions by source in thousand tonnes, EU 28, 1990 and 2016



Source: European Environment Agency, data as of 5 June 2018.

⁵⁷ 21st session of the Conference of the parties to the United Nations Framework Convention on Climate Change. The parties to the Paris Agreement committed to restricting GHG emissions to the levels needed to limit the rise in average global temperature to well below 2°C above pre-industrial levels - and to pursuing efforts to limit the temperature increase to 1.5°C (aspirational goal).

58 According to the European Environment Agency, transport emissions rose between 1990 and 2007 and then fell until 2014. In 2015 and 2016 they rose again ⁵⁸. This means that the sector has become one of the main challenges to the EU's overall decarbonisation goals. Under current policies, account being taken of the expected growth in freight and passenger transport, by 2050 GHG emissions from transport are projected to decrease by 15 % relative to 2005. However, emissions would still be 10 % higher in 2050 than in 1990, owing to the fast rise in transport emissions during the 1990s ⁵⁹.

59 In 2017, we published a landscape review on energy and climate change ⁶⁰ which contributes to the discussion on decarbonisation. It included, among other aspects, a comprehensive overview of relevant transport audits of EU SAIs concerned with the reduction of greenhouse gas emissions in the transport sector directly, or dealt with low-carbon transport modes, or a shift to such transport modes (see **paragraph 90**).

60 Achievement of the emissions reduction targets will require a fundamental shift towards using less energy, and cleaner energy, as well as the more efficient use of transport infrastructure. The EU has adopted initiatives and legislative measures to accelerate the decarbonisation of transport. The 2015 Energy Union Strategy ⁶¹ identified the transition to an energy-efficient, decarbonised transport sector as an area of critical importance. In 2016, this was followed by a low-emissions mobility strategy ⁶². The CEF programme also contributes towards the reduction of GHG emissions, as the majority of transport projects selected for funding relate to non-road transport modes.

61 Many efforts to reduce emissions, at both EU and Member State level, have focused on **roads**, the sector responsible for the largest share (72 %) of transport

⁵⁸ See *Trends and projections in Europe 2017*, Report No 17/2017, 7.11.2017, p. 25.

⁵⁹ Impact assessment accompanying the Proposal for a Directive of the European Parliament and of the Council amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, SWD(2017) 180 final of 31.5.2017, Annex 4, pp. 34-35.

⁶⁰ See our Landscape review: "EU action on energy and climate change" 2017 (<http://eca.europa.eu>).

⁶¹ A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy, COM(2015) 080 final.

⁶² European Commission, *A European Strategy for Low-Emission Mobility*, COM(2016) 501 final of 20.7.2016.

emissions⁶³ in 2016. Since road transport emissions are concentrated in densely populated areas and are among the main causes of air pollution in cities, the decarbonisation of road transport is also crucial for improving air quality and human health. In our 2018 report on air pollution, we noted that air pollution tends to affect city dwellers more than inhabitants of rural areas because the density of people living in cities means that air pollutants are released on a larger scale (for example, from road transport) and because dispersion is more difficult in cities than in the countryside⁶⁴. In 2017 and 2018, the Commission's three 'mobility packages'⁶⁵ contained proposals that included reviewing the EU's clean vehicles, Eurovignette and combined transport directives, an action plan to boost investment in alternative fuel infrastructure, the first ever CO₂ emissions standards for heavy-duty vehicles, new CO₂ emissions standards for cars and vans post-2020, improved fuel-efficiency labelling of tyres and an action plan on batteries.

62 In the area of **air** transport, the main focus has been in international aviation, building on the EU Emissions Trading System. The EU is committed to meeting at least the global target set for international aviation by the International Civil Aviation Organisation in October 2016, namely to maintain global net CO₂ emissions at 2020 levels through carbon-neutral growth.

63 For the **maritime** sector, the EU is in line with the International Maritime Organisation's global approach. In April 2018, the IMO adopted an initial strategy of reducing of GHG emissions from ships by at least 50 % by 2050 compared to 2008, whilst pursuing efforts towards decarbonising the sector as soon as possible in this century. To this end, the strategy is accompanied by a comprehensive list of possible emission reduction measures, including short-term measures⁶⁶.

⁶³ EC (2018), *EU Transport in Figures – statistical pocketbook 2018*, https://ec.europa.eu/transport/facts-fundings/statistics/pocketbook-2018_en.

⁶⁴ See our Special Report No 23/2018 "Air pollution: Our health still insufficiently protected" (<http://eca.europa.eu>).

⁶⁵ Europe on the move packages-*An agenda for a socially fair transition towards clean, competitive and connected mobility for all Europe*, COM(2017) 0283 final.

⁶⁶ <http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/GHG-Emissions.aspx>.

Part III: Key challenges to be addressed

64 Since 2010, the ECA has published 13 special reports on transport in the EU, mainly focusing on infrastructure investment and internal market development. Our observations led us to draw conclusions and make recommendations to help the Commission and the Member States to improve how they manage EU spending on transport, raise the quality of that spending, and to inform the public about how their money is being used (see **Annex I** for a full list of reports with a summary of their main conclusions and recommendations).

65 In **paragraphs 66 to 91**, we present **six** cross-cutting issues which we examined in our audits of different parts of the transport field, and which we consider to be of continuing importance. We also present a horizontal review of the key challenges faced by the development and financing of transport in the EU, as well as points raised by SAls of EU Member States, and made in other publically available information.

Match objectives with resources

66 The EU has set a number of very ambitious objectives for all transport modes: in particular the completion of the TEN-T core network by 2030. Given the considerable financial outlay and the time it takes to complete large transport infrastructure projects⁶⁷, thorough planning is necessary to achieve these objectives, supported by a robust and credible analysis of the estimated costs, for which there should be sufficient financial resources. Our past audit work has highlighted a number of issues that may cause objectives to be missed. Examples follow:

- (a) ERTMS audit⁶⁸: although revising the European deployment plan in 2017 was a step towards more realistic deployment, major challenges remained. Firstly, as in the past, the deployment plan did not include an overall EU cost assessment. Secondly, there was no dedicated funding nor was the source of such funding defined. In addition, there was still no legally binding deadline for decommissioning national systems and making ERTMS the only signalling system used in Member States. The low level of ERTMS deployment (8 % of the core

⁶⁷ For example, as stated in our Special Report No 19/2018 “A European high-speed rail network: not a reality but an ineffective patchwork” (<http://eca.europa.eu>), it takes around 16 years on average from the start of works for new high-speed lines to reach operability.

⁶⁸ Special Report No 13/2017 “A single European rail traffic management system: will the political choice ever become reality?” (<http://eca.europa.eu>).

network corridor sections at the time of the audit) put the achievement of the targets set for 2030 at risk.

- (b) Inland waterways audit⁶⁹: we found that EU strategies for transport along inland waterways lacked a comprehensive and robust analytical basis, and the cost of eliminating bottlenecks in Europe (around €16 billion) greatly exceeded the available funding from the EU budget for inland waterway infrastructure. Therefore, to address this gap there is a need for additional financing from national and/or private sources.
- (c) Maritime transport audit⁷⁰: we found that the long-term port strategies put in place by Member States and the Commission did not provide an adequate basis with which to plan port capacity or assess the need for EU and national public infrastructure funding.

Challenge to be addressed: Match relevant and achievable transport objectives and priorities with available resources

Setting ambitious policy objectives and priorities without ensuring the availability of resources reduces the likelihood of achieving them on time and thus affects the credibility of the entire policy. While progress has been made (see **paragraph 72**), further work is needed.

- The long-term plan for building the remaining infrastructure, in particular for the TEN-T core network, needs to be reinforced, with precise milestones that are regularly monitored, reliable overall cost estimates matched by available financial resources, and a particular focus on cross-border sections. This would increase the likelihood of achieving the transport policy objectives on time and within budget.

⁶⁹ Special Report No 1/2015 “Inland Waterway Transport in Europe: No significant improvements in modal share and navigability conditions since 2001” (<http://eca.europa.eu>). In September 2013, the Commission adopted the Naiades II programme (COM(2013) 623 final), which sets out the programme for policy action in the field of inland waterway transport for the period 2014-2020. The Court has not assessed the effectiveness of this programme.

⁷⁰ Special Report No 23/2016 “Maritime transport in the EU: in troubled waters - much ineffective and unsustainable investment” (<http://eca.europa.eu>). In April 2018, the designated European Coordinator published a Detailed Implementation Plan for the Motorways of the Sea. The Court has not assessed the effectiveness of this plan.

Enforcement by EU of a closer alignment of national infrastructure decisions with EU policy priorities

67 Although the TEN-T Regulation establishes the corridors along which infrastructure is to be built and the European coordinators seek to coordinate work plans accordingly, Member States provide most of the required funding and remain primarily responsible for the planning and delivery of transport networks. They alone can decide if and when to build infrastructure⁷¹. Thus there is a risk that the EU transport network will develop as a set of individual networks rather than as an integrated system that will best meet the needs of the EU as a whole.

68 We and other SAIs have noted in recent audits that Member States do not always share the EU's ambitions: Member States have no incentive to implement EU policies with little national interest, particularly cross-border links⁷².

- (a) HSR audit⁷³: Member States did not build high-speed lines if they were not considered a national priority, even if situated on a transnational corridor and part of the core network. Moreover, the Commission had limited enforcement tools or powers with which to hold Member States to their commitments to build the high-speed lines that were needed to complete the core network.
- (b) ERTMS audit: the planned deployment set out in the revised European deployment plan was affected by a lack of time alignment between Member States on cross-border sections. This showed that Member States essentially plan deployment according to their national needs, regardless of any commitments to EU priorities.

⁷¹ Special Report No 19/2018 "A European high-speed rail network: not a reality but an ineffective patchwork".

⁷² The CEF mid-term evaluation (pp. 6 and 13) also found that national budgets do not sufficiently prioritise multi-country cross-border investments. The evaluation mainly attributed this to asymmetry in the apportioning of costs and benefits in multi-country projects, since costs are incurred nationally/locally but benefits are realised on a European scale.

⁷³ Special Report No 19/2018 "A European high-speed rail network: not a reality but an ineffective patchwork".

- (c) The Swedish SAI⁷⁴ found that national authorities had not given priority to the EU perspective in their domestic transport infrastructure planning.
- (d) The French SAI⁷⁵ found that France was lagging behind with the investment needed to achieve the technological pillar of the Single European Sky and had submitted a performance plan that did not comply with the performance objectives set at EU level.

69 In its 2017 resolution⁷⁶, the European Parliament also expressed regret that Member States' national infrastructure plans are too often decided without reference to the TEN-T objectives. It urged the Commission and Member States to increase coordination between the two levels of planning and to prioritise projects that are in line with the TEN-T objectives and likely to deliver greater European added value.

70 As transport systems in the EU have historically been developed to meet national needs, administrative barriers and technical, operational and procedural differences between Member States pose an important obstacle to the objective of EU-wide interoperability. For example, national railways apply over 11 000 different rules, which the European Union Agency for Railways has been entrusted to "clean up"⁷⁷. We note that a timely implementation of the fourth railway package (see **paragraph 53**) could help removing the administrative and regulatory barriers to interoperability.

Challenge to be addressed: Establish effective enforcement tools at EU level to ensure Member States' infrastructure decisions are aligned with EU priorities more closely, paying particular attention to cross-border sections

Misalignment between EU and Member State priorities is an obstacle to completion of the single transport market.

⁷⁴ See *Road and rail investments in Sweden: lacking an EU perspective?* RIR 2017: 27, Riksrevisionen, Sweden, November 2017 (<https://www.riksrevisionen.se/>).

⁷⁵ See *L'État et la compétitivité du transport aérien: un rôle complexe, une stratégie à élaborer*, Cour des Comptes, September 2016 (<https://www.ccomptes.fr/fr>).

⁷⁶ European Parliament resolution of 19 January 2017 on logistics in the EU and multimodal transport in the new TEN-T corridors (2015/2348(INI)), point 12.

⁷⁷ Special Report No 19/2018 "A European high-speed rail network: not a reality but an ineffective patchwork".

- Appropriate enforcement tools are needed so that the obligations imposed by the TEN-T Regulation can be met more swiftly, allowing the completion of key strategic infrastructure and providing for remedial action if priority projects do not begin on schedule or are subsequently delayed, or if coordination problems on cross-border sections seem likely to prevent infrastructure from entering into service as planned.
- All administrative and regulatory barriers to interoperability should be removed as a matter of priority.

Enhance the added value of EU funding

71 EU funds can cover only a small fraction of overall investment needs (see **paragraphs 17 to 25**). To maximise their impact, these limited resources should focus on the highest priorities and EU added value. Our recent audits have shown that EU funds require better targeting.

- (a) ERTMS audit: although, according to EU policy, ERTMS investments should focus on the core network corridors, there were some EU-funded investments (using Cohesion policy support in particular) in single lines off the core network and with no connection to it or to a cross-border section. In addition, only limited EU support was allocated for cross-border trackside sections.
- (b) Maritime transport audit: the bulk of EU funding targeted designated “core ports”. However, we found that there are too many of these (104 in total), which might prevent funding from targeting the most important ports.
- (c) Inland waterways audit: no difference was made between the core and comprehensive networks, which did not help with the prioritisation of waterways. The EU strategies did not prioritise the elimination of bottlenecks nor did they prioritise rivers on which to invest the limited available resources.

72 The 2014-2020 ESIFs introduced a new precondition for access to transport funding: Member States now have to demonstrate that the proposed projects will be implemented as part of a comprehensive long-term national or regional transport plan that contributes to the single European transport area and the TEN-T. This is a positive step towards the more coordinated and strategic identification of projects.

Challenge to be addressed: Focus EU funding on priorities with the highest EU added value

Since the scale of EU's funding is limited compared to the overall needs, it is necessary to focus on priorities with the highest EU added value.

- Better coordinating and targeting EU funding, in both shared and direct management, to reflect the EU's transport policy priorities could help to maximise the effectiveness of investments and ensure a more coherent and strategic approach to developing the transport network.
- EU support should be prioritised for projects that are run in response to clearly established and properly assessed needs, are based on careful planning and offer demonstrable EU added value for the network (e.g. resolving major bottlenecks and missing links and establishing cross-border connections).

Improve project management

73 Project management entails appraising⁷⁸, implementing and monitoring the necessary resources and effort to deliver the project goals and objectives. Good project management is essential for objectives to be achieved efficiently and effectively.

Plan better by performing a thorough upfront analysis of costs and benefits

74 As transport infrastructure requires significant financial resources, it is crucial to analyse all major costs and benefits correctly in advance. When used appropriately, cost-benefit analysis (CBA) makes it possible to assess a project's return on investment and its social desirability and usefulness before any decisions are taken.

75 Our audits revealed that there is a tendency for project sponsors and appraisers to use CBA merely as a compulsory administrative step rather than as a tool for better decision-making. Furthermore, CBA is often affected by optimism bias: project sponsors tend to be too optimistic about key project parameters, including capital and

⁷⁸ Appraisal is the process of assessing the costs and benefits of meeting objectives and the associated risks. It helps decision-makers to understand the probable effects, trade-offs and overall impact of different options by providing an objective evidence base for decision-making.

operating costs, project duration and expected benefits. Making unrealistic estimates can result in undeliverable targets, over-sized and/or under-used projects, cost increases and delays - in other words, less value for money.

76 We found examples in several audits of decision-making on the back of an unreliable analysis, which led to undesirable impacts:

- (a) HSR audit: decisions to build high-speed lines were often politically based and made little use of cost-benefit analysis to ensure cost-efficient decision-making. Assessments of Member States' real needs were in some cases of poor quality, and too little consideration was given to the alternative solution of upgrading existing conventional lines, despite the significant potential. As a result, high-speed lines with limited chance of viability from the social cost-benefit perspective were being built.
- (b) Airports audit⁷⁹: In many cases the EU funded infrastructures were over-sized, due to significantly over-optimistic assumptions included in the investment plans. More than half of the EU funds supporting the audited airports went into infrastructures (newly built or upgrade) which were unnecessarily large and not fully used when completed.
- (c) Maritime transport audit: the funding of similar port infrastructure at neighbouring ports, with no sound business case or up-front cost-benefit analysis, has meant ineffective investments resulting in cases of unused or under-used facilities.

77 Acknowledging these weaknesses, since the 2015 round of CEF calls for proposals the Commission (INEA) also introduced a specific assessment of costs and benefits by external CBA experts before agreeing to provide CEF support, which may help to improve the quality of up-front decision-making.

⁷⁹ Special Report No 21/2014 "EU-funded airport infrastructures: poor value for money" (<http://eca.europa.eu>).

78 The Court notes that while the CEF and ESIF regulations for the 2014-2020 programming period included explicit references⁸⁰ to cost-benefit analysis, this is no longer the case in the proposals for regulations⁸¹ for the 2021-2027 period.

Simplify rules for implementing infrastructure projects

79 The Court and national SAIs have observed in recent audits that projects whose preparation was less thorough and detailed faced a higher risk of cost escalations and delays.

- (a) HSR audit: In the case of one station, construction costs had soared from €4.5 billion estimated in 2003 to €8.2 billion in January 2018 because of unrealistic initial cost estimates for tunnelling in a densely populated city centre, and insufficient assessments of geological, environmental and local community cultural heritage aspects.
- (b) PPP audit⁸²: an additional amount of almost 1.5 billion euro in public funds was necessary to complete the five motorways we audited, around 30 % of which was provided by the EU. In particular, the public authority in a public-private partnership to build and operate three motorways had to pay an additional €705 million to the private partners also due to the fact that projects were poorly prepared and PPP contracts had been signed before relevant issues were resolved such as clearing archaeological findings; obtaining the required environmental permits, and finalising the necessary land expropriations.
- (c) Several EU SAIs⁸³ have also reported on weaknesses in project planning/preparation leading to delays and cost overruns.

⁸⁰ Article 10 (6) of the CEF regulation 1316/2013 stipulated that the amount of financial assistance to be granted to the actions selected shall be modulated on the basis of a cost-benefit analysis of each project. Article 101 (e) of the ESIF common provisions regulation (1303/2013) stipulated that for the approval of major projects, the managing authority shall ensure that a cost-benefit analysis is available.

⁸¹ COM(2018) 438 final, 6.6.2018 and COM(2018) 375 final, 29.5.2018.

⁸² Special Report No 9/2018 “Public Private Partnerships in the EU: Widespread shortcomings and limited benefits” (<http://eca.europa.eu>).

⁸³ Austria, *Federal Report 2017/4: Railroad Project: Brenner Base Tunnel*, Rechnungshof, 2017 (<https://www.rechnungshof.gv.at/home.html>); Belgium, *Mise en oeuvre et financement du Réseau régional express (RER)*, Cour des Comptes, 2017 (<https://www.ccrek.be/>); UK,

80 Delays and cost overruns were also caused by inefficient regulatory and administrative procedures. For example, our maritime transport audit revealed significant delays in the implementation of projects because of administrative complexity (in one case 33 authorisations were needed to build and operate a marina, and in another it took 22 years to obtain the necessary authorisations to start port constructions). This is indicative of structural problems related to the issuing of permits and authorisations at national level.

81 The situation is amplified in cross-border projects, where procurement is a major issue. We highlighted in our HSR audit that there was no common legal framework for cross-border projects, and tendering documents, contracts and accounting systems differed from one Member State to the other. No simplified procedures (such as the “one-stop shops”) were in place to facilitate and accelerate implementation. In addition, the Commission lacked the necessary instruments to intervene effectively if delays on one side of a border hampered the timely use of high-speed rail infrastructure built on the other side of the border. European coordinators were well placed to monitor what is, or is not, working along a corridor, but they also lacked the legal power to intervene. All these inefficiencies adversely affected the speed and success of project implementation.

82 Having acknowledged this recurrent issue, in 2018 the Commission presented a legislative initiative⁸⁴ to the European Parliament and the Council with a view to streamlining TEN-T implementation, especially in the case of complex cross-border projects (introduction of one-stop shops, a 3-year timeframe for authorisations, strengthened role of the European Coordinators in monitoring the permit granting procedures, and simplified procurement procedures along borders). At the time of writing, the proposal for a regulation has still not been adopted by the European Parliament and the Council.

Modernising the Great Western railway - assessment of the Department management of the program, National Audit Office, 2016 (<https://www.nao.org.uk/>).

⁸⁴ Proposal for a Regulation of the European Parliament and of the Council on streamlining measures for advancing the realisation of the trans-European transport network, COM(2018) 277 final of 17.5.2018.

Enhance project monitoring

83 Monitoring, both during and after project implementation, is another crucial aspect of project management.

84 Regular monitoring of costs and benefits during implementation is necessary for reasons of management, control and transparent accountability. Large infrastructure projects with an implementation timespan of many years should feature a mechanism for regularly monitoring and, where necessary, updating original projections. This is vital to manage the delivery of social value through the realisation of targets and cost controls, and it can be beneficial for current and future decision-making.

85 In our audits, we found that regular cost-efficiency checks were not one of the guiding principles in implementing transport projects. However, we also observed examples of good practice where projects were reassessed before each new programming phase to verify that they still addressed current needs⁸⁵.

86 Monitoring and evaluation of a project after implementation involves assessing outcomes of the intervention and provides a summary of the lessons learned during design and delivery. We have argued in several reports⁸⁶ that project monitoring is mainly output-oriented and fails to assess results and impacts. Thus, no one body has clear information as to whether EU co-funded projects, taken individually and/or in the context of the core network corridors, have achieved any result-based objectives and impact on economic development (new jobs, , tourism, etc.).

Challenge to be addressed: Improve the planning, implementation and monitoring of EU-funded projects

Addressing recurrent issues in the planning, implementation and monitoring of EU-funded projects could help to improve the effectiveness of EU support.

⁸⁵ For instance, the HSR report highlighted a project review which concluded that configuring a line differently could save €5.7 billion euro but add just 10 minutes to the trip, i.e. a saving of €570 million for each additional minute of travel time. This example demonstrates how design choices lead to substantial savings with limited impact on performance.

⁸⁶ Special report No 21/2018 “Selection and monitoring for ERDF and ESF projects in the 2014–2020 period are still mainly outputs-oriented” (<http://eca.europa.eu>); Special Report No 19/2018; Special Report No 23/2016

- Planning could be enhanced by conducting a thorough needs analysis and using realistic traffic forecasts and reliable parameters to assess project costs and benefits.
- Rules for implementing infrastructure projects, particularly cross-border, should be simplified as a matter of priority so as to remove all administrative and regulatory barriers. Doing so could help to reduce inefficiencies, shorten delays and keep cost increases under control.
- Regular monitoring of costs and benefits during project implementation is key to ensuring cost-efficient investments. Monitoring focused on results and impacts as well as outputs could provide a clearer picture of the extent to which EU-funded projects are delivering sustainable results and impacts and contributing to the EU's transport objectives.

Pay more attention to the maintenance and renewal of existing infrastructure

87 High-quality infrastructure is essential for the efficient and sustainable functioning of the EU internal market. However, on a number of occasions we and other SAIs⁸⁷ have reported on the inadequate maintenance of existing road, rail and river infrastructure in different countries of the EU, with implications for quality, safety, efficiency and sustainability⁸⁸.

88 Infrastructure maintenance is the responsibility of national and local authorities. The Commission has raised the issue that road and rail infrastructure across the EU has

⁸⁷ Special Report No 19/2018, Special Report No 8/2016, Special Report No 1/2015; Sweden, *The Swedish Transport Administration's road maintenance*, RiR 2017:8, Riksrevisionen, 2017 (<https://www.riksrevisionen.se/>); Netherlands, *Maintaining the main road network*, Algemene Rekenkamer, 2014 (<https://www.rekenkamer.nl/>); France, *Le rapport public annuel 2016, Tome II, 7 - Les transports ferroviaires en Île-de-France depuis 2010 : des progrès sensibles, des insuffisances persistantes*, Cour des comptes, 2016 (<https://www.ccomptes.fr/fr>); Poland, *Functioning of the inland waterways*, Najwyższa Izba Kontroli, 2014 (<https://www.nik.gov.pl/>).

⁸⁸ The Commission ex-post evaluation of Cohesion policy programmes for 2007-2013 also noted uncertainty about the financial sustainability of some projects due to a lack of evidence that maintenance costs would be properly met. See, p. 70.

been degrading because of too little maintenance⁸⁹. It has noted that maintenance budgets are often insufficient and have not kept up with the increasing scale of infrastructure and the ageing of crucial links, resulting in significant maintenance backlogs⁹⁰. Both the European Parliament⁹¹ and the Council⁹² have also underlined the importance of paying due consideration to transport infrastructure maintenance needs.

89 In this respect, the Commission’s proposal for the new common provisions regulation for the 2021-2027 programming period (not yet adopted at the time of writing) includes an enabling condition “Comprehensive transport planning at the appropriate level”, which would require the provision of information about the availability of budgetary and financial resources to fund planned investments and cover the operating and maintenance costs of existing and planned infrastructure. This enabling condition needs to be fulfilled and applied throughout the programming period by the Member States; otherwise, expenditure related to the specific objective concerned cannot be included in the payment applications.

Challenge to be addressed: Ensure that infrastructure is adequately maintained and sustainable

Adequate infrastructure maintenance is a key prerequisite for the development of a sustainable EU transport network.

- Stakeholders should pay attention not only to investments in new infrastructure, but also to ensuring the maintenance and renewal of existing infrastructure, which are currently unsatisfactory.

⁸⁹ European Commission, *Transport in the European Union Current Trends and Issues - 2018*, p. 12.

⁹⁰ Impact assessment accompanying the Proposal for a Directive of the European Parliament and of the Council amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, SWD(2017) 180 final of 31.5.2017, pp. 6-20.

⁹¹ European Parliament *resolution of 19 January 2017 on logistics in the EU and multimodal transport in the new TEN-T corridors* (2015/2348(INI)), point 15.

⁹² Council conclusions on the progress of the Trans-European Transport Network (TEN-T) implementation and the Connecting Europe Facility (CEF) for transport of 5 December 2017, point 25.

More effort to shift goods off roads to other transport

90 As mentioned in *paragraph 58*, transport emissions are one of the main challenges to the EU's overall decarbonisation goals. Our 2017 landscape review on energy and climate change included, among other aspects, relevant transport audits of EU SAIs concerned with the reduction of greenhouse gas emissions in the transport sector directly, or dealt with low-carbon transport modes, or a shift to such transport modes. In particular, we noted that there were issues with the design and effectiveness of biofuels policy and that the shift in transport of goods from road to rail and maritime/inland waterways was not taking place to a sufficient degree. Both inland waterway transport and rail failed to compete with road transport.

91 In our rail freight audit, we noted that externalities produced by rail and road transport⁹³ (environmental impacts and pollution, congestion, accidents, etc.) are not taken into account in a comprehensive manner when setting the price to be paid by users for access to infrastructure.

Challenge to be addressed: Enhance efforts to shift more goods off roads

Shifting goods from roads to other more environmentally friendly transport modes could help reduce transport emissions, which are mainly concentrated in the road sector.

- Stakeholders should pursue the shift of freight from roads to other transport modes by strengthening intermodal competition and by setting out principles requiring the external costs of all transport modes to be adequately considered, and advocating their implementation.

⁹³ As part of its mobility packages, the Commission has proposed a review of Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures.

This Landscape Review was adopted by Chamber II, headed by Mrs Iliana Ivanova, Member of the Court of Auditors, in Luxembourg at its meeting of 24 October 2018.

For the Court of Auditors

Klaus-Heiner Lehne
President

Annexes

Annex I — ECA transport reports since 2010

Title	Description/conclusions	Key recommendations
<p>Special Report No 19/2018 “A European high-speed rail network: not a reality but an ineffective patchwork”</p>	<p>The EU’s current long-term plan for high-speed rail is unlikely to be achieved and there is no solid EU-wide strategic approach. The European high-speed rail network is only a patchwork of national lines without proper coordination across borders, planned and built by Member States in isolation, resulting in poor connections. The European Commission has no legal tools and no powers in the decision making to ensure that Member States make rapid progress towards completing the core network.</p>	<p>The European Commission should: carry out realistic long-term planning; agree with Member States which key strategic stretches to implement first, with an assessment of the need for very high speed lines, close monitoring and enforceable powers to ensure that commitments to complete the core EU high-speed rail network are respected; link EU co-funding to earmarked strategic priority projects, effective on-track competition and achievement of results; simplify cross-border tendering procedures, use “one-stop-shops” for the various formalities, and lift all remaining administrative and regulatory barriers to interoperability; improve seamless high-speed rail operations for passengers, by, for example, e-ticketing and simplification of track access charges.</p>
<p>Special Report No 9/2018 “Public Private Partnerships in the EU: Widespread shortcomings and limited benefits”</p>	<p>EU co-financed Public Private Partnerships (PPPs) cannot be regarded as an economically viable option for delivering public infrastructure. The PPPs audited suffered from widespread shortcomings and limited benefits, resulting in €1.5 billion of inefficient and ineffective spending. In addition, value for money and transparency were widely undermined in particular by unclear policy and strategy, inadequate analysis, off-balance-sheet recording of PPPs and unbalanced risk-sharing arrangements.</p>	<p>The Commission and the Member States, in particular, should: not promote more intensive and widespread use of PPPs until the issues identified have been addressed; mitigate the financial impact of delays and re-negotiations on the cost of PPPs borne by the public partner; base PPP selection on sound comparative analyses of the best procurement option; ensure the necessary administrative capability and establish clear PPP policies and strategies to implement successful EU-supported PPPs; improve the EU framework for better PPP project effectiveness, so that the choice of the PPP option is justified by value-for-money considerations.</p>

<p>Special Report No 18/2017 “Single European Sky: a changed culture but not a single sky”</p>	<p>The Single European Sky (SES) initiative to improve air traffic management across the EU addressed a clear need and has led to a greater culture of efficiency. However, European airspace management remains fragmented and the SES as a concept has not yet been realised. EU funding for the technological elements of SES has so far reached €730 million and is due to grow to €3.8 billion by 2020.</p>	<p>The European Commission should: review the SES high-level goals; analyse other options for reducing fragmentation and prioritise R&D solutions that address the problem; ensure that national supervisory authorities are fully independent; streamline the performance scheme and review some of its key indicators; review the EU support structure for R&D in the light of the SES objectives; reinforce the accountability of the SESAR Joint Undertaking.</p>
<p>Special Report No 13/2017 “A single European rail traffic management system: will the political choice ever become reality?”</p>	<p>The deployment of an EU-wide railway signalling system is at a low level so far and represents a patchwork. This is despite the fact that the concept is not generally questioned by the rail sector. The auditors found that many infrastructure managers and railway undertakings are reluctant to invest in the system due to the expense entailed and the lack of an individual business case.</p>	<p>The auditors made a number of recommendations to the European Commission, the Member States and the European Union Agency for Railways concerning the assessment of deployment costs; decommissioning of national signalling systems; individual business cases for infrastructure managers and railway undertakings; compatibility and stability of the system; the role and resources of the European Union Agency for Railways; alignment of national deployment plans, monitoring and enforcement; improved take-up of EU funds for rail signalling projects; and better targeting of EU funding.</p>
<p>Special Report No 23/2016 “Maritime transport in the EU: in troubled waters — much ineffective and unsustainable investment”</p>	<p>A third of EU spending on facilities such as quays, docks and breakwaters at EU seaports between 2000 and 2013 was ineffective and unsustainable. One euro in three spent on the projects examined (€194 million) went on projects which duplicated existing facilities nearby. €97 million was invested in infrastructure which was either unused or heavily underused for more than three years after completion.</p>	<p>The Commission should: revise the current number of 104 core ports and set out an EU-wide port development plan; consider the exclusion of EU funding for port infrastructure for container transshipment and storage as well as for superstructure which is not within the public remit; ensure that all essential loan information on proposed EIB loans is shared between the EIB and the Commission; prioritise core ports and key waterways with EU support for investment only where EU added value is clear and there is sufficient private investment; Issue port-specific state aid guidelines and monitor and follow up earlier state aid decisions; reduce administrative burden and delays by promoting national “one stop-shops” for issuing permits and authorisations; improve the competitive position of maritime transport compared to other transport</p>

		modes by further simplifying maritime transport and customs formalities.
Special Report No 8/2016 “Rail freight transport in the EU: still not on the right track”	Despite the European Commission’s objective of shifting freight from road to rail, rail’s share of EU freight has actually declined slightly since 2011. Rail is more environmentally friendly and uses less imported oil, but it is failing to respond to the competition from road.	The Commission and the Member States should address the weaknesses observed in rail freight market liberalisation, traffic management procedures, administrative and technical constraints, monitoring and transparency of the performance of the rail freight sector and fair competition between different types of transport. To make better use of EU funds, the Commission and the Member States should match policy objectives more consistently to funding allocations and the selection, planning and management of projects and network maintenance.
Special Report No 1/2015 “Inland Waterway Transport in Europe: No significant improvements in modal share and navigability conditions since 2001”	EU-funded efforts to shift freight traffic in Europe from roads to inland waterway transport have made slow progress in the last 15 years. Projects co-funded by the EU as part of a strategy to increase the use of inland waterways have not been implemented effectively. Inland waterway transport has made no gains as an alternative to road transport and navigability has not improved.	To improve the effectiveness of EU funding of inland waterway transport: Member States should prioritise inland waterway projects with the greatest and most immediate benefits; the Commission should focus its funding on projects with advanced plans to eliminate bottlenecks. To improve coordination between Member States, the Commission should: rigorously analyse the potential market and benefits of inland navigation on different river segments and coordinate across Member States the implementation of core TEN-T network; agree specific and achievable objectives with Member States to eliminate bottlenecks; strengthen the legal base in order to broaden the reporting requirements in relation to the navigation status of the waterways and to require Member States to elaborate national inland waterway maintenance plans in a coordinated way.

<p>Special Report No 21/2014 “EU-funded airport infrastructures: poor value for money”</p>	<p>EU-funded investments in airports have not generated the expected results and have produced poor value for money. Due to a lack of adequate planning and forecasting, some of the funded airports were situated too close to one another, while some of the construction projects were too big for the numbers of planes and passengers involved.</p>	<p>The Commission should ensure during the 2014-2020 programme period that Member States only allocate EU funding to airport infrastructures in those airports which are financially viable and for which investment needs have been properly assessed and demonstrated. This should be part of the approval and monitoring of Operational Programmes carried out by the Commission.</p> <p>The Member States should have coherent regional, national and supranational plans for airport development to avoid overcapacity, duplication and uncoordinated investments in airport infrastructures. As a result of this audit, the EU support to airport infrastructure was substantially reduced in the 2014-2020 programming period.</p>
<p>Special Report No 1/2014 “Effectiveness of EU-supported public urban transport projects”</p>	<p>Two thirds of urban transport projects co-financed by EU structural funds are underutilised. Weaknesses in project design and inadequate mobility policy were two of the main contributory factors identified.</p>	<p>The Commission should require that: management tools be put in place to monitor the quality of the service and the level of user satisfaction once projects are operational; a minimum number of result indicators with related targets be included in the grant agreements and are subsequently measured; the estimation of the number of expected users is more rigorously analysed and that the choice of the mode of transport is supported by a quantified comparison of different transport options; urban transport projects be included in a sound mobility policy; these relevant recommendations also be addressed by the Member States’ authorities when managing EU-funded urban transport projects.</p>
<p>Special Report No 5/2013 “Are EU Cohesion Policy funds well spent on roads?”</p>	<p>The ECA audited 24 ERDF and Cohesion Fund road investment projects in Germany, Greece, Poland and Spain to assess whether they achieved their objectives at a reasonable cost. The total value of audited projects exceeded € 3 billion. All the road projects examined by the auditors delivered savings in travel-time and improved road safety. But they found that insufficient attention was paid to ensuring</p>	<p>Three main recommendations: EU co-financing of road projects should depend on clear objectives with targets for travel-time, gains in road safety, capacity improvements and economic effects; payments should be linked to the use of cost effective road building techniques in line with best practice; and Member States should ensure international competition on construction projects and focus their procurement systems on delivering the most economical offers.</p>

	<p>cost-effectiveness. Most of the audited projects were affected by inaccurate traffic forecasts. The result was that the type of road chosen was often not best suited to the traffic it carried. Motorways were preferred where express roads could have solved the traffic problems. 14 out of 19 projects recorded less traffic-use than expected. Compared to initial plans, the average cost increase was 23 %. Time overruns averaged 9 months or 41 % when compared to the deadlines agreed at the outset.</p>	
<p>Special Report No 3/2013 “Have the Marco Polo programmes been effective in shifting traffic off the road?”</p>	<p>The audit found there were not enough relevant project proposals put forward because the market situation and the programme rules discouraged operators from taking advantage of the scheme. Half of the audited projects were of limited sustainability. One of the main findings of the audit was that there were serious indications of “deadweight” - that is projects which would have gone ahead even without EU funding. In fact, 13 of the 16 beneficiaries audited confirmed that they would have started and run the transport service even without a subsidy. In addition, there were no reliable data to assess benefits on the environmental impact of freight transport, road congestion or road safety.</p>	<p>The ECA recommended the Council, the European Parliament and the Commission to consider discontinuing EU funding for transport freight services following the same design as the Marco Polo programmes (“top-down supply-push”) which led in particular to the weaknesses identified in this report (insufficient market uptake, absence of evidence of achieving the objectives, high administrative burden, poor sustainability and deadweight) and making continuation of such funding conditional upon an ex-ante impact assessment showing whether and to what extent there is an EU added value. This would imply making a detailed market analysis of the potential demand and taking up the experience and best practices of Member States similar national support schemes. Only in the event of a positive assessment as to a meaningful EU action in this area, the Court recommends that the Commission take a series of actions to strengthen performance in future schemes.</p>
<p>Special Report No 4/2012 “Using Structural and Cohesion Funds to co-finance transport infrastructures in seaports: an effective investment?”</p>	<p>The audit found that only 11 of the 27 audited transport infrastructures in seaports’ projects co-financed by the Structural and Cohesion Funds in the 2000-06 programme period were effective. In addition, a third of the projects audited had non-transport</p>	<p>The Commission should remind the Member States of their obligation to use EU funding in accordance with sound financial management; make cohesion policy aid for the coming period conditional upon the existence of a comprehensive long-term port development strategy (based on an assessment of needs) for all the ports</p>

	<p>related objectives. As well as ineffective projects, the Court found that some projects were not in use and 4 significant projects with a value of 70.8 % of the total amount audited had not been completed at the time of the audit. Out of the 23 completed projects, eleven had been completed on time but 12 experienced an average construction delay of 26 months. Furthermore, five of the completed projects, representing almost half of the amounts audited, will need considerable further investment before they can be put into effective use.</p>	<p>of the relevant region; increase the focus on the effectiveness of projects through the use of result and impact indicators, on-the-spot visits on effectiveness issues, and introduction of the principle that EU funding should be conditional upon results; carry-out ex post checks on the use and performance of co-financed infrastructures on a risk basis; strengthen the assessment of major projects and Cohesion Fund projects.</p>
<p>Special Report No 8/2010 “Improving transport performance on Trans-European rail axes: Have EU rail infrastructure investments been effective?”</p>	<p>The Court concluded that, through co-financing the development of rail infrastructure, the EU contributed to providing new possibilities for trans-European rail transport. Some actions could however be taken in order to achieve greater value for EU money.</p>	<p>The Commission should, in future considerations of the definition of the Priority Projects, work with Member States and railway institutions to identify those trans-European corridors for which there is significant actual or anticipated demand, strengthening the European-level knowledge and analytical bases where necessary. The Commission should consider placing increased emphasis on alleviating practical constraints for cross-border rail transport that are not per se related to infrastructure, and encourage and facilitate collaboration amongst Member State rail institutions to this end.</p>

Note: Our reports and the Commission’s replies to our findings and recommendations are published on our website (<http://eca.europa.eu>).

Annex II — The EU's ten goals for a competitive and resource-efficient transport system

Developing and deploying new and sustainable fuel and propulsion systems

- Halve the use of 'conventionally-fuelled' cars in urban transport by 2030; phase them out in cities by 2050; achieve essentially CO₂-free city logistics in major urban centres by 2030;
- Low-carbon sustainable fuels in aviation to reach 40 % by 2050; also by 2050 reduce EU CO₂ emissions from maritime bunker fuels by 40 % (if feasible 50 %);

Optimising the performance of multimodal logistic chains, including by making greater use of more energy-efficient modes

- 30 % of road freight over 300 km should shift to other modes such as rail or waterborne transport by 2030, and more than 50 % by 2050, facilitated by efficient and green freight corridors. To meet this goal will also require appropriate infrastructure to be developed;
- By 2050, complete a European high-speed rail network. Triple the length of the existing high-speed rail network by 2030 and maintain a dense railway network in all Member States. By 2050 the majority of medium-distance passenger transport should go by rail;
- A fully functional and EU-wide multimodal TEN-T 'core network' by 2030, with a high quality and capacity network by 2050 and a corresponding set of information services;
- By 2050, connect all core network airports to the rail network, preferably high-speed; ensure that all core seaports are sufficiently connected to the rail freight and, where possible, inland waterway system;

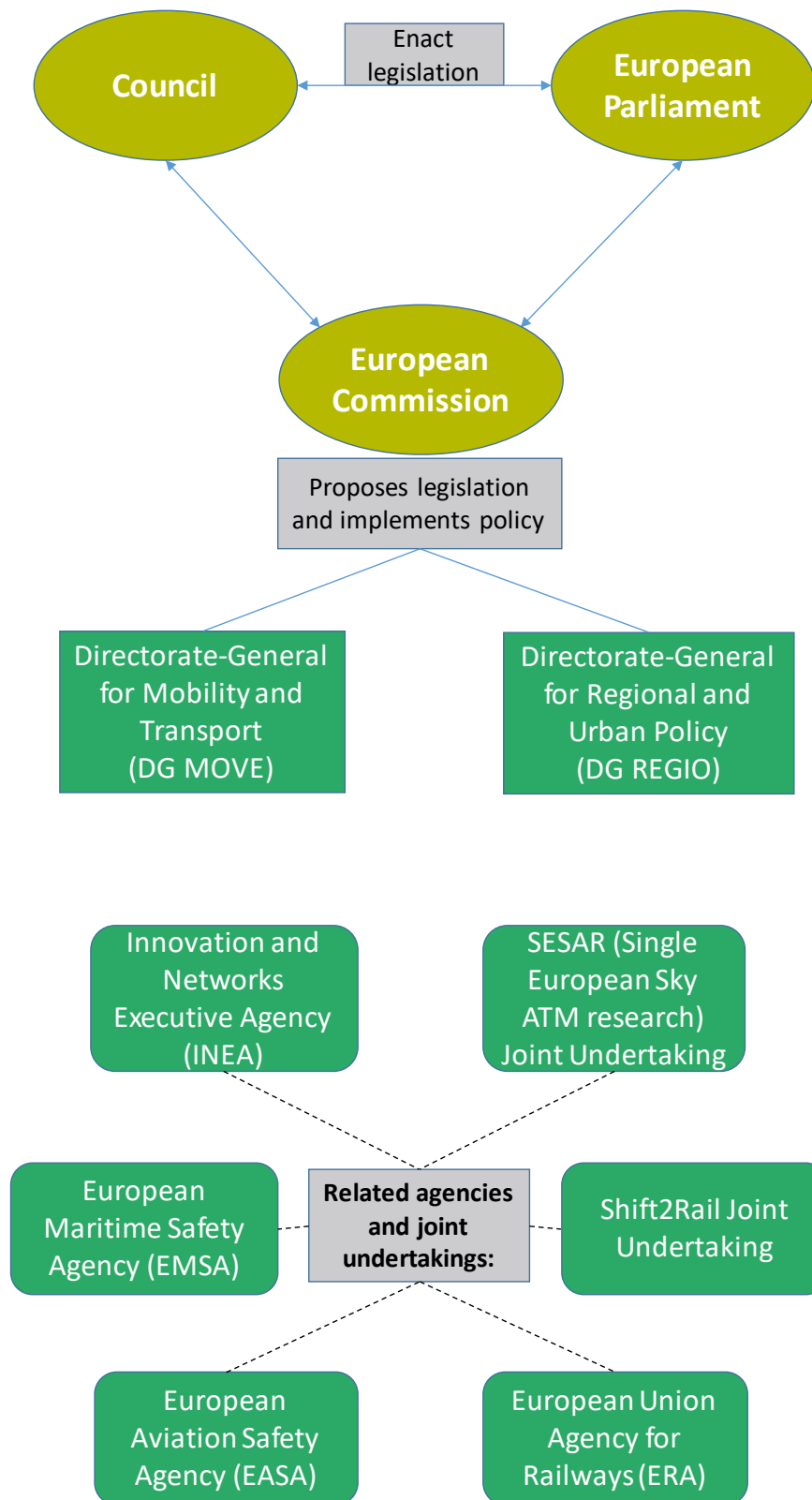
Increasing the efficiency of transport and of infrastructure use with information systems and market-based incentives

- Deployment of the modernised air traffic management infrastructure (SESAR) in Europe by 2020 and completion of the European Common Aviation Area. Deployment of equivalent land and waterborne transport management systems (ERTMS, ITS, SSN and LRIT, RIS). Deployment of the European Global Navigation Satellite System (Galileo);

- By 2020, establish the framework for a European multimodal transport information, management and payment system;
- By 2050, move close to zero fatalities in road transport. In line with this goal, the EU aims at halving road casualties by 2020. Make sure that the EU is a world leader in safety and security of transport in all modes of transport;
- Move towards full application of “user pays” and “polluter pays” principles and private sector engagement to eliminate distortions, including harmful subsidies, generate revenues and ensure financing for future transport investments.

Source: COM(2011) 144 final of 28.3.2011 - Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system.

Annex III — Main stakeholders at EU level



Abbreviations

ATM: Air traffic management

CEF: Connecting Europe Facility

DG MOVE: European Commission Directorate-General for Mobility and Transport

DG REGIO: European Commission Directorate-General for Regional and Urban Policy

EFSD: European Fund for Strategic Investments

EIB: European Investment Bank

ERDF: European Regional Development Fund

ERTMS: European Rail Traffic Management System

ESIFs: European Structural and Investment Funds

Eurostat: Statistical Office of the European Union (a Commission Directorate-General)

Galileo: European Global Navigation Satellite System

GDP: Gross Domestic Product

GHG: Greenhouse gases

GLONASS: Global Navigation Satellite System

GPS: Global Positioning System

HSR: High-speed rail

IMO: International Maritime Organisation

INEA: Innovation and Networks Executive Agency

ITS: Intelligent transport systems

MFF: Multiannual financial framework

OECD: Organisation for Economic Co-operation and Development

PPP: Public-private partnerships

RIS: River information services

SAI: Supreme audit institution

SES: Single European Sky

SESAR: Single European Sky ATM Research

SGP: Stability and Growth Pact

TEN-T: Trans-European Transport Network

TFEU: Treaty on the Functioning of the European Union

VTMIS: Vessel Traffic Management Information System

Landscape review team

This landscape review was produced by audit Chamber II Investment for cohesion, growth and inclusion spending areas, headed by ECA Member Iliana Ivanova.

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This landscape review describes and analyses what the EU does in the field of transport. We focus on infrastructure investments funded from the EU budget and present cross-cutting themes that we identified in recent audits in the five main modes of transport: road, rail, air, inland waterways and maritime. Drawing from our observations and recommendations, we present a horizontal review of the key challenges faced by the development and financing of transport in the EU.

By providing clear and accessible information to stakeholders and interested parties, this landscape review aims to encourage stakeholders to improve actions and/or co-ordinate them better in order to add value to the EU's efforts to meet its transport policy objectives.



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