

STUDY

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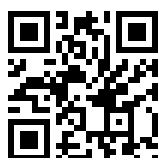
# Relaunching transport and tourism in the EU after COVID-19

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## Part VI: Public Transport



**Transport and Tourism**





RESEARCH FOR TRAN COMMITTEE

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# Relaunching transport and tourism in the EU after COVID-19

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## Part VI: Public Transport

### **Abstract**

This thematic briefing provides the European Parliament's Committee on Transport and Tourism (TRAN) with an overview of the repercussions of the COVID-19 pandemic on the public transport sector, as well as policy recommendations to address the challenges emerging from the crisis.

This document was requested by the European Parliament's Committee on Transport and Tourism.

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## LIST OF ABBREVIATIONS

<b>CEF</b>	Connecting Europe Facility
<b>EGD</b>	European Green Deal
<b>EP</b>	European Parliament
<b>ERA</b>	European Railway Association
<b>ERTMS</b>	European rail traffic management system
<b>ETCS</b>	European Train Control System
<b>ETF</b>	European Transport Workers' Federation
<b>EU</b>	European Union
<b>ITS</b>	Intelligent Transport Systems
<b>MAAS</b>	Mobility-as-a-Service
<b>NIPH</b>	Norwegian Institute of Public Health
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PPE</b>	Personal protection equipment
<b>PSO</b>	Public service obligation
<b>PT</b>	Public transport
<b>PTA</b>	Public transport authority
<b>PTO</b>	Public transport operator
<b>RRF</b>	Recovery and Resilience Facility
<b>SSMS</b>	Sustainable and Smart Mobility Strategy
<b>TEE</b>	TransEuropeExpress
<b>TRAN</b>	Committee on Transport and Tourism
<b>UPT</b>	Urban public transport
<b>VKM</b>	Vehicle Keeper Markings
<b>WHO</b>	World Health Organization

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## EXECUTIVE SUMMARY

### KEY FINDINGS

- Since the outbreak of the pandemic, the public transport sector has lost about 40-70% of passengers. Currently, the level of ridership compared to pre-COVID levels is around 60-70% in many European cities.
- Within the next 3 years, public transport authorities (PTAs) expect this variation in passengers settling at a structural 10-15% decrease in usage of urban public transport compared to pre-pandemic levels.
- Rail passenger transport demand decreased by about 48% for annual passenger-km compared to 2019, as well as an average of 30-40% fewer passengers. Since May 2021, there has been a significant improvement of passenger volumes. However, in August 2021 the sector still experienced a 33% contraction compared to pre-crisis times.
- There is no evidence that using public transport increases the risk of contracting the virus, if personal protection and sanitation measures are in place.
- Digital tools have been used in several cities to improve public transport services. Many public authorities work on the management of transport demand to reduce peak travels.
- Integration between public transport, walking and cycling is key to deliver competitive levels of service. The sector should take this opportunity to enhance flexibility, service quality and technological tools.
- The rail infrastructure in Europe, in particular the non-high-speed network, needs to be renewed and extended, while made more consistent Europe-wide.
- The increased demand for on-demand and flexible public transport services due to COVID-19 and the ageing population can provide a boost to the systematic consideration of vulnerable users.
- Monitoring mobility patterns can support effective government decision making, management and operations, providing public transport operators and public transport authorities with evidence-based decision making.
- Following a period of temporary financial support, public transport stakeholders should define a framework to facilitate stable financing and funding for public transport.
- National and local authorities should support the implementation of public transport-related infrastructural projects in a more systematic way.

### The impacts of COVID-19 on the public transport sector

The COVID-19 pandemic has significantly reduced ridership across public transport networks. Since the outbreak of the pandemic, the public transport sector has lost 40-70% of passengers. As of today, many European metropolitan areas currently record a 60-70% of pre-pandemic public transport ridership level. Within the next 3 years, public transport authorities (PTAs) expect this variation to settle at a 10-15% decrease in usage of public transport compared to pre-pandemic levels.

The rise of teleworking appears to be a permanent change, at least on a hybrid model. As a result, commuting trips in many countries have reduced in frequency.

The restrictions on international and domestic travels have also caused a widespread decline in the demand for passenger transport. In 2020, this led to a 48% decrease in annual passenger-km compared to 2019, accompanied by a 40% drop in passenger numbers. In the same year, there has simultaneously been a reduction in circulating trains, corresponding to an 11% reduction in transport service supply compared to 2019.

These changes prompted comprehensive financial losses. The contraction of farebox revenue was estimated to average 90%. This has been compensated, in most cases, by national authorities. However, in several cases during the 2021-2022 period, the losses will be covered through reduced timetables.

Railways in the European Union lost 24 billion euros in revenues for passenger services over the year 2020, a 41% reduction compared to 2019.

### **How to rebuild confidence in public transport?**

There is no evidence that using public transport increases the risk of contracting the COVID-19 virus if personal protection, physical distancing and sanitation measures are in place.

According to surveys, EU citizens would prefer the prioritisation of policies promoting public transport at the city level. However, at the same time they seek safe mobility options, therefore often preferring the use of private cars. The analysis of perceptions and needs of these different segments can help policy makers and planners to define policies and campaigns to incentivise the use of public transport and forecast changing demand for service planning.

Some PTAs are trying to regain passenger trust through communication campaigns on infection-proof networks, highlighting stringent cleaning protocols and transparent scientific information, while also informing travellers on risk-minimising behaviours.

Digital tools have been used in many cities to inform users of the real-time network occupancy, suggest alternative routes, support contact-tracing strategies and help citizens feel safe in public transport.

### **The “new normal”: opportunities and innovations for post-COVID-19 scenarios**

Many public authorities have already intervened on the management of transport demand and will continue to do so. Going forward, pricing policies can discourage travel during peak hours, (real-time) information on crowding can help users to adapt their travel choices, and quotas and seat reservations on rail services for peak time travels help to manage capacity.

Integration between public transport, walking and cycling is key to delivering competitive levels of service. PTAs and public transport operators (PTOs) have the opportunity to accelerate the deployment of new business and operational models for on-demand public transport in conjunction with shared mobility services. This will also help to facilitate their move towards comprehensive Mobility-as-a-Service (MaaS) options.

The rise of new technologies increases the quantity of available data on transport habits and trajectories. Applications and traffic management tools are important for managing safety-related aspects such as physical distancing, contactless transactions, and flexible timetables.

However, the introduction of new on-demand and flexible public transport technologies should systematically take into account the broad range of passenger needs and their digital capabilities. The digital divide represents a challenge for segments of the population which are most affected by COVID-19, particularly the aged and those with disabilities.

The rail infrastructure in Europe, in particular the non-high-speed network, needs to be renewed and extended and made more consistent across the continent. In order to mitigate the economic impact of COVID-19, EU Regulation 2020/1429 reduces the financial burden on rail undertakings by temporarily easing rules on charges.

## **Recommendations**

This review exposes the need to capitalise on the large - and growing - quantity and quality of studies exploring the limited risks of contracting the virus on public transport, and translate them into convincing information campaigns. This will be essential to combat misinformation around the safety of services and encourage higher network usage.

Monitoring mobility patterns can support effective government's evaluation, management and operations, providing PTOs and PTAs with evidence-based decision making. This will ensure services are designed according to passenger requirements and needs.

Following a period of temporary financial support, public transport stakeholders should define a framework to facilitate stable financing and funding for public transport. National and regional authorities should work together to include a higher share of public transport-focussed investments in their plans. This could be supported through the commissioning of a study to assess the effectiveness of recent measures, and which of them should eventually be continued in the future.

Public transport is expected to become a competitive mobility option. The sector should take this opportunity to enhance flexibility, service quality and technological tools. This should include night services, Mobility-as-a-Service (MaaS), high-speed routes and links between urban and per-urban areas. The cost of services should also continually be assessed to ensure affordability.

National and local authorities should support the implementation of public transport-related infrastructural projects in a more systematic way, providing for dedicated timelines and funding for all urban nodes of the TEN-T network.

Data sharing protocols with a defined set of minimum data are expected to ensure the ease of cross-border travel and circulation in foreign countries. These should ease data sharing while establishing systemised ways of collaborating in a GDPR compliant way.

# 1. OVERVIEW OF THE IMPACTS OF COVID-19 ON THE PUBLIC TRANSPORT SECTOR

## KEY FINDINGS

- Since the outbreak of the pandemic, the public transport sector has lost about 40%-70% of passengers. As of today, European metropolitan areas record a 60-70% of pre-pandemic public transport ridership level. Within the next 3 years, PTAs expect this variation settling, in general terms, at structural 10-15% decrease in usage of public transport compared to pre-pandemic levels.
- In the first wave of the pandemic, international rail passenger volumes dropped by almost 100% for all operators. The restrictions on international and domestic travels have led to a 48% decrease in annual passenger-km in compared to 2019, accompanied by a 40% drop in passenger numbers. In 2020, there has simultaneously been a reduction in circulating trains, corresponding to an 11% reduction in transport service supply compared to 2019.
- The contraction of farebox revenue was estimated to average 90%. This has been compensated, in most cases, by national authorities. In several cases, for the 2021-2022 period, the losses will be covered through reduced timetables.
- Railways in the European Union (EU) lost 24 billion euros in revenues for passenger services over the whole 2020, compared to 2019, a negative change of 41%.
- EU countries and/or their infrastructural managers have adopted financial measures to limit the impact of the pandemic on operators.

## 1.1. Introduction

The [Oxford's English dictionary](#) defines public transport as “buses, trains, and other forms of transport that are available to the public, charge set fares, and run on fixed routes”, while the [Collins dictionary](#) defines it as “a system of buses, trains, etc., running on fixed routes, on which the public may travel”. A unique definition of what the EU means by the term ‘public transport’ is not provided on its official pages. The International Association of Public Transport (UITP), [argues that](#) “we once limited the definition of public transport to mass transit, combining public access and collective use”, while nowadays “public transport should include all collective and shared modes”. The potential of the integration of shared mobility services into the public transport offer will be discussed in subsequent chapters. However, the present briefing focuses on public transport intended as rail passenger transport, considering both national and international travel, and urban public transport, including all modes. The briefing focuses exclusively on passengers.

This chapter presents the impacts that COVID-19-related travel restrictions, quarantine rules and lockdowns had on the public transport sector. The first chapter examines the impact of COVID-19 on public transport and rail operators, including effects on traffic and passenger use. The second chapter looks at the impact of the pandemic on revenue losses and on the business structure of the public transport and rail services, including the management of contracts, budgets and investment. The third chapter summarises the impacts on public transport and rail transport workers, an issue which has already been widely [presented in the dedicated thematic briefing](#) as part of this research project.

## 1.2. Impacts on public transport use

Prior to COVID-19, in 2014, urban, suburban, and regional public transport in Europe [accounted for about 185 million passengers daily](#). This corresponded to approximately to 57.9 billion local public transport journeys in the EU-28 in 2014, of which 55.8% by bus + trolley, 14.5% by tram, 16.1% by metro, and 13.6% by suburban rail, with the remainder distributed over urban and suburban bus and interurban coach services. Since the outbreak of the pandemic, the public transport sector has lost between 40%-70% of passengers<sup>1</sup>.

The impacts on the urban public transport and rail passenger transport sectors are a consequence of the following measures: i) restriction of unnecessary trips (e.g. commuting or leisure travels) during lockdown periods, ii) introduction of quarantine and teleworking policies, iii) mobility adapted to the needs of essential workers and in order to safeguard health and contain the spread of the virus, iv) aversion to risk and self-imposed social distancing, and v) structural changes to mobility habits and trends.

### 1.2.1. Urban public transport

Urban public transport is the mode of urban transport that [has suffered the greatest negative impact compared to other transport modes](#). By 26 October 2020, car driving across Europe had returned to 93% of pre-COVID-19 levels, active transport was back to 90%, in comparison, public transport usage did not go beyond 77%. By the end of 2021, many [European metropolitan areas recorded a 60-70% of pre-pandemic public transport ridership level](#).

Urban mobility patterns have been changed dramatically by the pandemic. According to [UITP estimates in June 2021](#), the decline in public transport patronage has been around 80-90% in major cities around the world), while the use of private and individual vehicles increased.

In Italy, the pre-COVID-19 local public transport sector registered 16 million trips a day by bus, tram, metro, ferries, etc. [Surveys carried out by the Asstra Research Office](#) with public transport operators showed that, in the period of March to December 2020, the average percentage reduction in demand was 68%, with an average loss of 10.9 million passengers per day.

The [CityTransitData](#) database records the impact of the COVID -19 pandemic on the level of public transport use in the EU cities of Barcelona, Berlin, Brussels, Madrid, Paris, and Vienna. As for ridership today, the values compared with the pre-pandemic levels are between 55-70% (Barcelona 69%, Berlin 70%, Brussels 62 %, Madrid 62.7%, Paris 55.6%, with the exception of Vienna (79%).

Service provision, according to [Vehicle Keeper Markings \(VKM\)](#), has remained stable, except for Barcelona and Brussels, which has dropped to 97% and 95% of previous provision, respectively. Berlin, Madrid, Paris and Vienna have not substantially reduced their public transport offer; even with regard to passenger capacity limits, which in 2020 [have been subject to heavy restrictions](#), only Madrid still limits its capacity to 80%.

In September 2021, POLIS has conducted interviews with some of the public transport authorities (PTAs) [active in the network](#). Among these, the metropolitan area of Barcelona recorded a 60-70% of pre-pandemic public transport ridership level at that time, with higher level for buses<sup>2</sup>, while by early October, [the percentage had risen to about 80%](#) (see Figure 2). As of September 2021, the Netherlands' South Brabant region's figures were also around that percentage, while Vienna performed at around

<sup>1</sup> Based on UITP COVID Ridership updates data (non-public figures).

<sup>2</sup> Data taken from interviews with POLIS members.

70-80%, higher than in other Austrian cities. In Ile-de-France, there were about 42 million urban and peri-urban journeys per day before the pandemic, of which 9 million by public transport, 17 by active modes and 16 million by motorised individual modes. In the post-pandemic period, 35% of public transport users have shifted towards private cars usage.

In September 2021 Transport for London recorded 62% usage on buses and 41% on metros, compared to pre-pandemic levels, a trend reflected in other cities<sup>3</sup>. By November 2021, this percentage had [increased to 75% and 65%](#), respectively. According to one of the experts interviewed, a possible interpretation of the difference in ridership level between bus and metro depends on the fact that as bus's have a driver, passengers perceive an immediate and constant control of the anti-COVID-19 rules, and therefore feel safer. Ventilation is perceived as more likely to be effective above ground than underground.

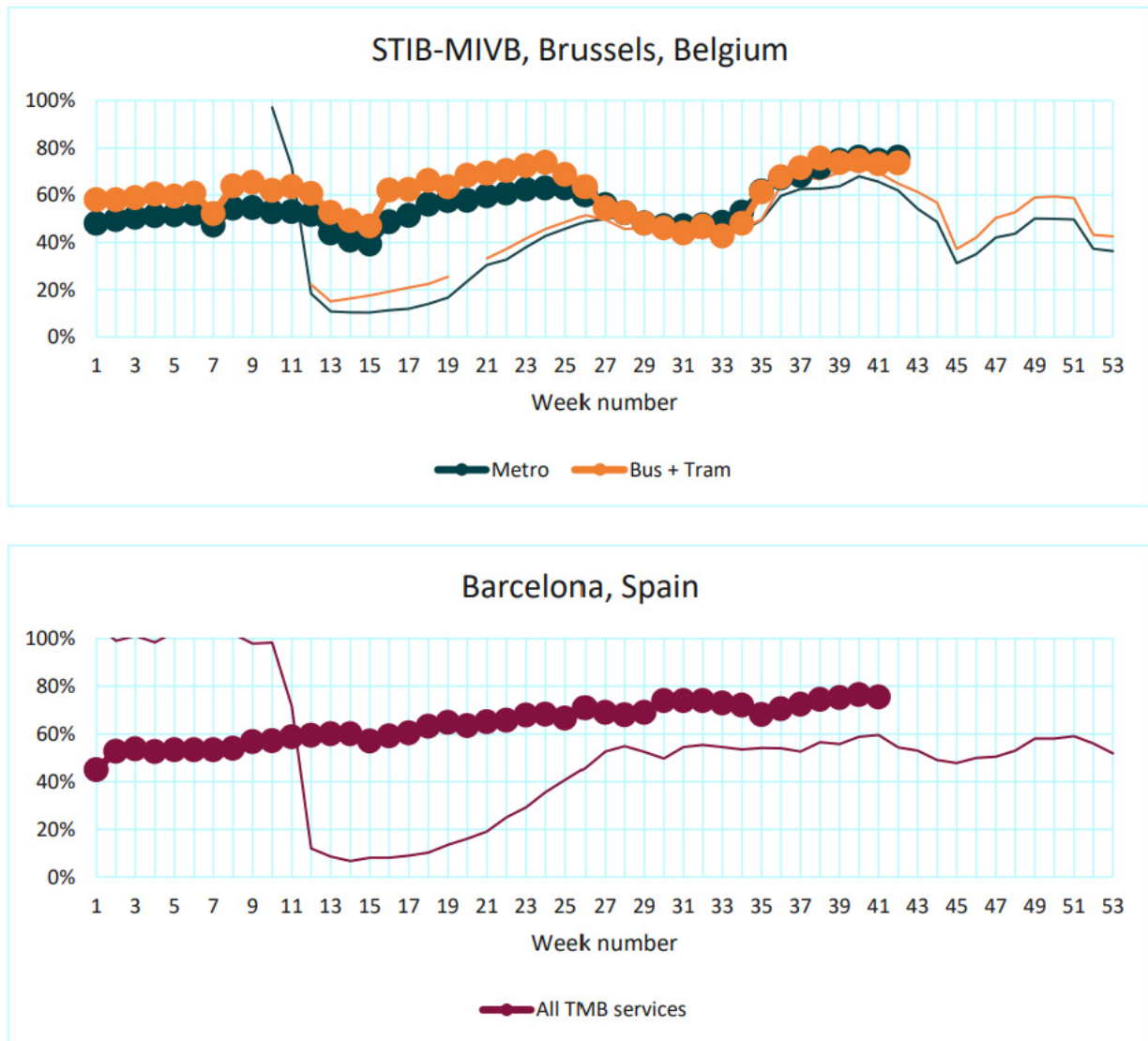
Within the next 3 years, PTAs expect this variation settling, in general terms, at a structural 10-15% decrease in usage of public transport compared to pre-pandemic levels<sup>4</sup>.

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<sup>3</sup> Data taken from interviews with POLIS members.

<sup>4</sup> Data taken from interviews with POLIS members.

**Figure 1: Ridership development in Brussels and Barcelona public transport networks (2021, 2020):** The thin line shows ridership levels in 2020, the thick line in 2021.



Source: [UITP Better urban mobility: getting it right with public transport](#)

### 1.2.2. Rail passenger transport

In the 1<sup>st</sup> wave of the pandemic (March-June 2020), with the most stringent precautionary measures in place, [international rail passenger volumes dropped by almost 100% for all operators](#), in accordance with international border closures, as reported by the International Union of Railways in July 2020.

A comparison between the 4<sup>th</sup> quarter of 2019 and that of 2020 (data provided by Eurostat) shows that, despite a [slight recovery](#) in the 3<sup>rd</sup> quarter of 2020, the number of rail passengers further decreased in the majority of EU Member States. Ireland presented the largest decrease in rail passengers (-74 %) followed by Greece (-68%), Italy and the Netherlands (-61% both), Slovakia (-54%), Slovenia (-53%) and Poland (-51%). The least impacted countries have been Bulgaria (-29%) and Estonia (-22%), while the remaining countries accounted for an average of -40.13% decrease in the number of passengers.

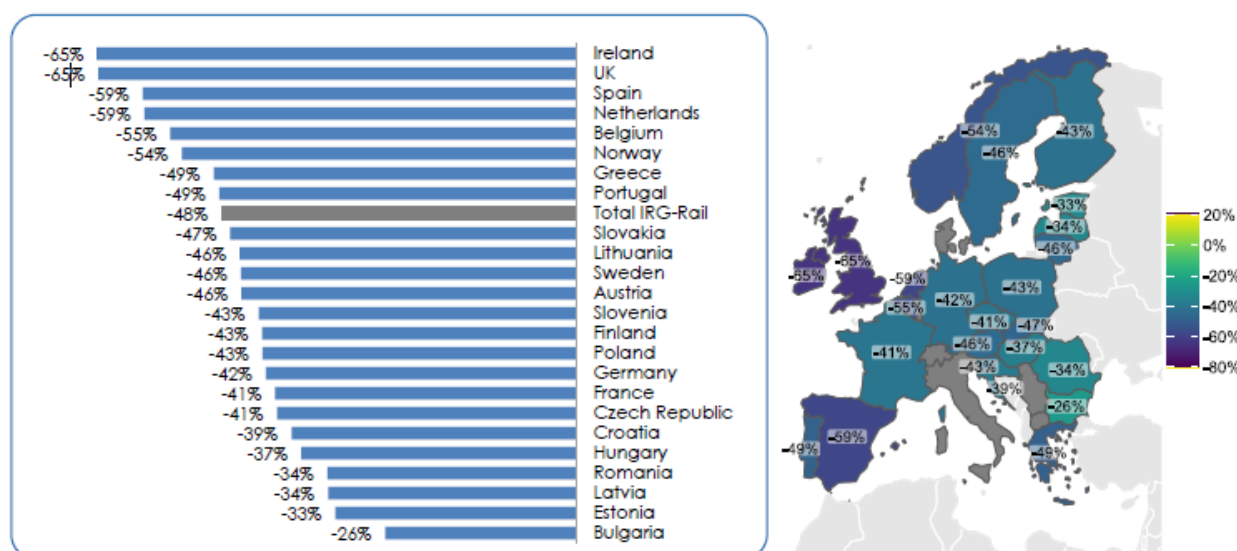
In addition to the number of passengers, another relevant parameter is the length of trips taken by passengers during this period (calculated in passenger-kilometres). The decrease in average trip length



was even more significant than the decrease in the number of passengers. In the 4<sup>th</sup> quarter of 2020, compared to the same quarter in 2019, the largest decrease in passenger-km was in Ireland (-76%) and Greece (-72%), followed by Italy (-69%), Slovakia (-66%) and Spain (-65%). This is because, among the precautionary measures, long-distance traveling or non-essential trips were also discouraged.

The restrictions on international and domestic travel have caused a general decline in the demand for passenger transport. According to [estimates by IRG-Rail](#), this led to decreases in 2020 of about 48% for annual passenger-km, ranging from -26% (Bulgaria) to -65% (Ireland). Interestingly, the variation in freight tonne-km has been much less significant during the same period (-7%).

**Figure 2: Change in passenger-km, comparison 2020-2019**



Source: [IRG-Rail report](#) on Impacts of the COVID-19 crisis and national responses on European railway markets in 2020.

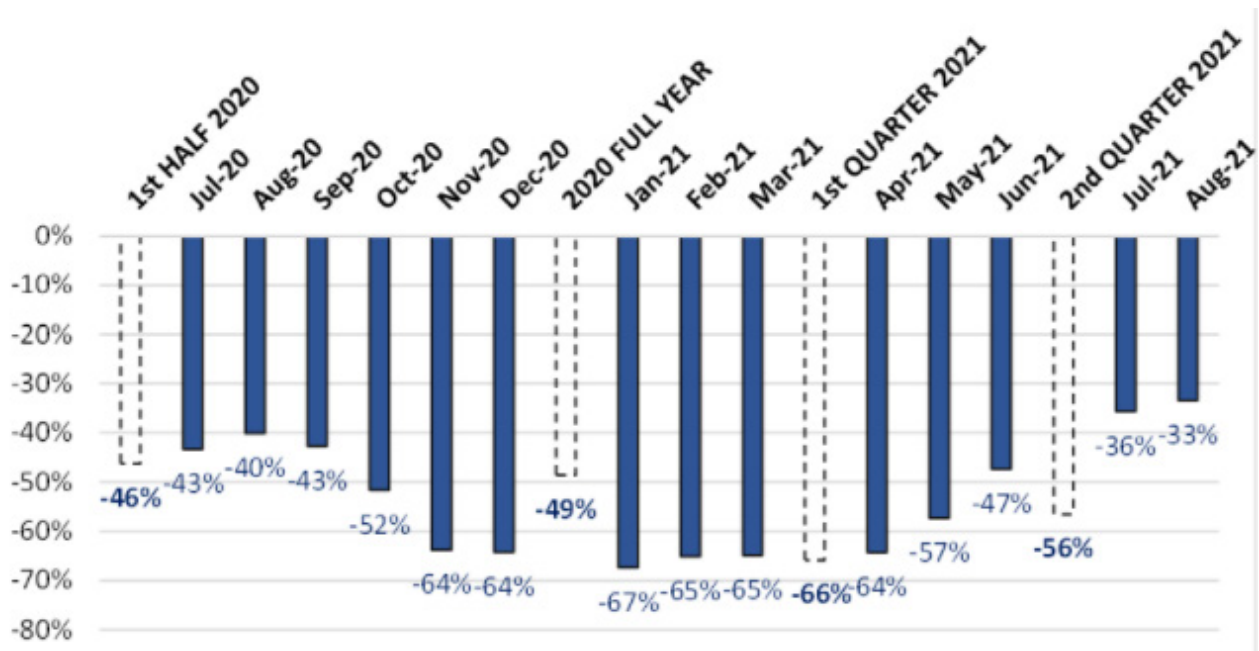
The passenger train-km figure reflects the number of kilometres travelled by trains in Europe, and its 11%-decrease testifies the contraction of the rail transport service supply in 2020 compared to 2019. However, some countries, such as Austria, Bulgaria and Germany, have kept all, or part, of their public service obligations (PSO)<sup>5</sup> in place to ensure access to and the use of public transport. The variations in passenger train-km were between -23% and +1%: it should however be noted that the only country showing an increase is Hungary, where operators were not asked to reduce their PSO services.

There was a difference between PSO and non-PSO services, with the former having been maintained or slightly reduced in most countries, while the latter, including cross-border international routes, was stopped also due to the restrictive measures, lockdown and closure of borders for non-essential movements. In some cases, during 2021, tourism has instead propelled greater demand. For example, during the summer months Slovenia saw an increase in its traffic of international non-PSO, due to the greater influx of tourists from neighbouring countries.

The [CER COVID Impact Tracker](#) provides frequent updates on passenger volumes, which have dropped around -66% from November 2020 until April 2021, compared to 2019 levels. However, since May 2021, there has been a significant and continuous improvement of passenger volumes (-33% in August 2021 compared to 2019 pre-crisis times).

<sup>5</sup> [https://ec.europa.eu/info/topics/single-market/services-general-interest\\_en](https://ec.europa.eu/info/topics/single-market/services-general-interest_en).



**Figure 3: Passenger: volume loss (variation gap in passenger-km)**

Source : [CER COVID Impact Tracker](#)

### 1.3. Impacts on revenues, budget, and investment

The decrease in passengers translates into a loss of revenue for operators and for the sector more widely. This can have serious short- and long-term consequences on the quality and frequency of the service, as well as on investments.

#### 1.3.1. Urban public transport

According to data collected by UITP, the 60 billion trips taken yearly on public transport (pre-pandemic level) generated [between 130 billion euros and 150 billion euros per year](#) in the EU area, which corresponds to approximately 1-1.2% of the total EU GDP.

While operators kept the service running between 70-100% of previous levels to guarantee the movement of workers and essential services even during the lockdown, the collapse of farebox revenue was estimated by UITP to be approximately [40 billion euros for the entire sector in 2020](#), corresponding to a [reduction of over 90%](#). This contraction of income was compensated, in most cases, by national authorities, which guaranteed coverage of the losses<sup>6</sup>.

In Italy, the public transport sector generated a total annual turnover of 12 billion euros before the outbreak of COVID-19. [Asstra estimates](#) that revenues from the sale of travel tickets for 2020 were approximately 2.2 billion euros lower; this figure takes into account the tickets that users purchased but have subsequently been refunded because they could not be utilised during the lockdown. For 2021, recovery in demand appeared slow: the number of passengers was around 50% lower than pre-COVID-19, with a loss of passengers causing lower revenues for the sale of travel tickets (estimated at 2 billion euros). The Italian government has guaranteed public support, making possible to offset the negative fiscal effects of COVID-19 for the year 2020. Additionally, for 2021 public resources should be transferred to operators to compensate for the losses, although an agreement is yet to be made. The

<sup>6</sup> Data taken from interviews with POLIS members.

volume of resources allocated to compensate for the reduction in tariff revenues amounts to over 1.8 million euros.

However, this process is not always straightforward and accounts for the current period but not the medium / long term. There has been a tendency for national governments to avoid acknowledging or accepting the structural changes in mobility patterns: for example, PTAs consulted by POLIS estimate 3 years' time to reach a structural 90% patronage compared to pre-COVID-19. Member States have conducted short-term negotiations with PTAs and PTOs, instead of looking at longer-term measures to support and encourage the shift towards innovative funding mechanisms and new business models for public transport. In several cases<sup>7</sup>, for the period 2021-2022, the losses which will not be covered by the national governments will instead be compensated by reduced timetables. Nevertheless, this change gives the opportunity for PTAs to test the integration of multimodal and on-demand solutions in their service portfolios.

### 1.3.2. Rail passenger transport

The sector also [continues to record significant losses in revenue](#) for rail passenger transport. [Railways across the European Union \(EU27\) lost](#) 24 billion euros in revenues for passenger services over the whole 2020, compared to 2019 – a negative change of 41%. Passenger services were more affected than freight. The situation has been particularly hard on international long-distance passenger services (-80% to -100%), and especially on companies specialising in cross-border services (like Eurostar and Thalys). This is particularly the case for non-PSOs, i.e. operators providing commercial passenger transport services. [CER estimates for post-2020 confirm this trend](#): in the first quarter of 2021, average revenue losses amounted to over 50%, and long-distance international commercial services, such as Eurostar, recorded losses up to 97%. [ALLRAIL estimates are even more negative](#): they put losses at over 81% with international long-distance passenger services recording losses up to 100%.

EU countries and/or their infrastructural managers have adopted financial measures to limit the impact of the pandemic on operators and ensure their survival. IRG-Rail provides an [overview of financial measures per Member State](#), collected between the end of 2020 and the beginning of 2021. These are reported in the figure below. The measures taken by the largest number of countries are i) Compensations for the loss of revenue for the railway undertakings, ii) Loan facilities, credit guarantees, or postponing of public charges or debts, iii) Temporary unemployment aid and short-term work, and iv) Relaxation of cancellation charges / reservation penalties.

For more details on the measures taken by the EU and Member States to support the economic recovery, refer to the briefing [Relaunching transport and tourism in the EU after COVID-19. Part I: Overview](#).

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<sup>7</sup> Data taken from interviews with POLIS members.

**Figure 4: Financial measures adopted by states or infrastructure managers by category**

	Adjustment of Track Access Charges (TAC) and cancellation/reservation charges				State aids to the railway undertakings or infrastructure managers					
	Changes of the level of TAC	Postponing of the invoicing	Changes of the reference for TAC	Relaxation of cancellation charges / reservation penalties	Fundings of TAC	Compensation for the loss of revenue for the infrastructure manager	Compensations for the loss of revenue for the railway undertakings	Temporary PSO contract	Loan facilities, credit guarantees, or postponing of public charges or debts (or "tax vacation")	Temporary unemployment aid and short-term work
Austria				x	x	x		x		x
Belgium				x					x	x
Bulgaria										
Croatia				x			x		x	
Czech Republic										
Estonia			x				x			
Finland							x		x	
France					x		x			x
Germany				x	x	x	x		x	x
Greece							x			
Hungary						x	x			
Ireland										
Italy	x	x		x		x	x		x	x
Latvia									x	
Lithuania									x	
Netherlands							x			
Norway		x		x				x	x	x
Poland				x			x		x	
Portugal				x						
Romania						x	x		x	x
Serbia										
Slovakia	x									
Slovenia				x						x
Spain			x	x					x	
Sweden		x					x		x	x
UK							x			x

Source: [IRG-Rail report](#)

## 1.4. Impacts on transport workers

Transport workers have higher exposure to the risk of infection, a concern examined in depth in the briefing [Relaunching transport and tourism in the EU after COVID-19. Part III – Transport workers](#).

Some countries have relaxed working time regulations in order to continue to ensure the frequency of the public transport services despite the shortage of drivers due to infections. This, however, can lead to [fatigue](#), exposing both drivers and passengers to higher safety risks - a highly undesirable effect of such measures.

The response to COVID-19 has directly exposed rail workers to the virus. [From on-board staff to infrastructure maintenance](#), rail workers are usually in contact with hundreds of passengers at stations and platforms. Controls at [railway stations](#) (which are essential public areas) proved difficult before social distancing measures at national level were enforced. [In Belgium](#), transport workers' exposure to contagion had an impact on staff availability at the start of the pandemic. The same occurred in Sweden, where the rail operator SJ registered an increase in the number of staff on sick leave.

Despite the safety measures that operators have implemented, the reduction in passengers has affected several of these companies which have been forced to cut staff to mitigate extra financial burdens. For instance, [the Dutch railway company NS](#) will cut 1.4 billion euros from their annual budgets due to the reduction in the number of passengers. This in turn will lead to a [reduction of around 2,300 jobs](#). All staff with permanent contracts will remain on the pay-roll, but might be trained to perform different tasks.

## 2. HOW TO REBUILD CONFIDENCE IN PUBLIC TRANSPORT?

### KEY FINDINGS

- There is no evidence that using public transport increases the risk of contracting the virus if personal protection and sanitation measures are in place.
- Teleworking appears to have become a permanent feature, at least in a hybrid structure. As a result, commuting trips in many countries have reduced in frequency.
- According to surveys, EU citizens would prefer the prioritisation at city level of policies promoting public transport. However, at the same time they want to move safely, tending to prefer the use of private cars.
- Some PTAs have tried to regain their trust through communication campaigns on infection-proof networks, highlighting stringent cleaning protocols and transparent scientific information, but also informing travellers on the correct behaviour to be adopted during the trip to minimise risks.
- Digital tools have been used in many cities to inform users of real-time network occupancy, suggest alternative routes, support contact-tracing strategies and help citizens feel safe in public transport. Arranging or expanding contactless payment facilities, e- ticketing and self-service sales to replace cash has helped to avoid physical contact.

### 2.1. Introduction

Restoring travellers' confidence is essential to relaunch public transport. To this end, understanding travellers' demands and requirements will help PTAs/PTOs enhance service redesign.

This chapter focuses on the actual risk of getting infected with COVID-19 on public transport, followed by a description of travellers' expectations, attitudes and behaviours captured in recent surveys. The final part of the chapter provides an overview of the short-term measures adopted by several actors.

It is important to keep in mind that these measures are constantly adapting, depending on the current situation. In January 2022, [Omicron is becoming the dominant variant in Europe](#). Although [vaccines are effective in protecting against the more serious effects](#) of the disease, [infections have continued to increase between December 2021 and January 2022](#). The WHO estimates that at the current rate of infection, [more than 50% of Europeans will be infected with the omicron variant](#) by March 2022. European governments are introducing several measures to counter the spread of the virus, including stricter smart working policies or even new lockdowns, [as in the case of the Netherlands](#).

### 2.2. The risk of contagion on public transport

Public transport, as seen in Chapter 1, is one of the transport sectors that has felt the brunt of the pandemic. The sector is experiencing structural changes both because of the perceived risks of contagion and because demand has changed due to response measures (e.g. teleworking). Regarding the first cause, research shows that there is no evidence that using public transport increases the risk of contracting the virus, if the use of personal protection equipment (PPE), such as masks, is mandatory, if physical distance is guaranteed, and if the environments are sanitised properly. According to the

report by the International Union of Railways (UIC) on [potential measures to restore confidence in rail travel](#), “using other prevention measures in combination with social distancing, as wearing a mask, will modify the threshold of social distancing, and thus enable to increase the occupancy rate of the trains”. Furthermore, traces of the virus on surfaces and in the air have been shown to be negligible. A recent COVID-19 sampling study by the Imperial College London, addressing both touch point and air samples, found [no trace of the virus at major rail stations](#) as a result of enhanced cleaning methods of operators and wearing of face masks by passengers. Previous research found [no traces of COVID-19 \(SARS-CoV-2 RNA\) on London underground, buses and stations](#). A research carried out by the University of Genoa on the city's public transport system has confirmed that, even in the case of a 30-minute stay on the vehicle in the presence of an infected person, [the risk of infection is low if everyone, i.e. the infected passenger and potential passengers at risk, correctly wears a mask](#). Moreover, [mandatory wearing of masks and practicing social distancing with masks during peak hours reduce infection rates by 93.5% and 98.1%](#), respectively, according to a simulation carried out in South Korea. Epidemiological studies carried out in [Austria](#) and [France](#), as well as data from [Japan](#) suggest that, if preventive measures are in place, the risk of contagion on public transport is very low. Indeed public transport vehicles are potentially safer than other enclosed spaces. In Germany, data collected by the Robert Koch Institut in August 2020 reported that [only 90 \(0.04%\) of a total of 202,225 documented cases were attributable to means of transport](#) (bus, plane, ferry)<sup>8</sup>. In France, data shows that [only 1% of COVID-19 clusters are linked to transport](#) (land, air and sea)<sup>9</sup>.

The [risk of contracting COVID-19 on public transport was also compared to the risk associated with getting involved in a road accident](#): in the latter case, the risk remains higher. It is therefore essential that the authorities address the public perception of risk, to put in place the most suitable measures to reassure users and therefore rebuild confidence in public transport. For example, a YouGov survey revealed that [71% of respondents think the obligation to wear masks on public transport should stay in place](#), even after general restrictions are lifted. Increasing citizens' safety perception, when this is in line with pursuing the collective well-being, is key to ensuring the success of measures to increase confidence in public transport - a key factor in its recovery.

### 2.3. Expectations, attitudes and traveller behaviour: surveys overview

The pandemic has forced citizens and businesses to change their mobility habits and behaviours. In order to increase travellers' confidence, PTAs / PTOs should understand what travellers want and need during this period of uncertainty due to the pandemic. It is also necessary to investigate whether these behaviours will last, and more importantly, whether the change is desirable to maximise collective well-being.

One of the most significant changes in behaviour, which had an impact not only on mobility but also on people's lives, is the rise of teleworking. This appears to be a [permanent change, at least on a hybrid model](#). As a result, commuting trips in many countries have reduced in frequency. In the short to medium term, many employers have continued to require their employees to work from home as an infection prevention measure, a move encouraged or impelled by authorities. The general trend is a [combination of working from home and the office at flexible times](#), which could also help to improve demand management and flatten peak travel times.

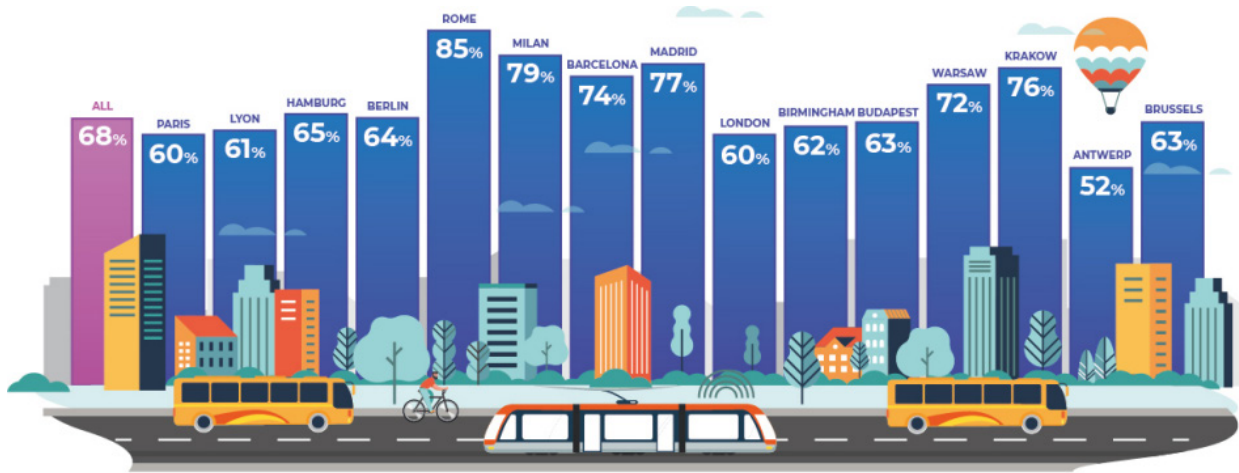
<sup>8</sup> Outbreaks in the train can sometimes be difficult to determine, since the identity of a contact is not always traceable and under-recording is possible. Therefore, train-related cases are not reported in the referenced source.

<sup>9</sup> They mainly come from workplaces (24%), health care venues (16%), family gatherings (14%), public events (9%), social accommodations (8%), etc.



According to a YouGov survey conducted a few months ago, [the majority of EU city residents would like local authorities to prioritise policies that promote public transport](#), walking and more green space. 66% seek more space for walking, while 60% would like to see more room for public transport. According to the same report, demand for sustainable mobility is even stronger among citizens who have suffered from COVID-19. Support for public transport promotion ranks particularly high in Rome (85%) and Madrid (77%).

**Figure 5: Percentage of citizens wanting their mayor to do more to promote the use of public transport**



Source: [YouGov survey](#)

Nevertheless, the latest surveys on users' concerns ([McKinsey](#), [Deloitte](#)) during COVID-19 demonstrated that the intention to undertake out-of-home activities varies by country and activity. Most respondents intend to shop for necessity, and prefer to avoid crowded places. Overall, citizens seem to be in favour of measures that guarantee more space for soft modes of transport. Nevertheless, as they want to move safely, they also tend to prefer the use of private cars that guarantee physical distancing, not always feasible on buses and metros. For this reason, there has been a relative reduction in the use of public transport and shared transport. However, the [increase in the use of private cars](#), associated with a high level of safety, is not sustainable at an environmental level and for transport network and infrastructure capacity.

When countries implemented stay-at-home measures, travellers sought to [control their transit surroundings far more](#). 54% of surveyed individuals by PWC in May 2020 reported they would avoid public transport, including train, metro and bus.

The same survey estimated that consumers are concerned with protecting themselves from the virus, with 43% of respondents willing to pay more for trips where physical distancing is guaranteed. In addition, 75% of surveyed individuals reported that they feel safer [when they see employees wearing PPE and third-party certified sanitation reviews](#). When they are asked about their rating of the means of transport in relation to risk, again public transport receives the worst score (77%).

Some structural changes in the way users travel are expected. In the Netherlands, as of January 2021, approximately 25% of people declared that they expect to cycle and walk more in the future, while only 4% expect a decrease in walking or cycling. Also for car usage, the number of people expecting an increase is higher than the ones expecting a decrease. [25% of the interviewees also expect to travel](#)

[less by public transport compared to pre-COVID behaviour](#), which is a quite higher number compared to 13% expecting an increase in use.

A study conducted by TU Delft assesses [how passenger behaviour could adapt to changes in the pandemic](#), based on experiments conducted in the Netherlands after the first wave. The study identifies two groups of comparable size, the 'COVID Conscious', mainly elderly and women, and 'Infection Indifferent', including those who used public transport most frequently during the pandemic. The analysis of perceptions and needs of these different segments can help policy makers and planners to define policies and campaigns to incentivise the use of public transport and forecast the demand for service planning. It is also important to understand if users travel on public transport because they have regained trust, or because they currently have no alternative. The analysis of the level of confidence must always be accompanied by an analysis of the level of satisfaction.

Reducing the risk of infection is the most important factor when the 'COVID Conscious' citizens decide how to travel. Therefore, widespread vaccination coupled with mobility service providers taking significant steps towards health and safety should favour the recovery of shared mobility and public transport. However, a persistent reduction in demand for passenger transport services is expected in the short-medium term, associated with flexible teleworking practices. As for urban public transport, teleworking in turn alleviates the pressure on the system and helps flatten the morning and evening peaks of service usage.

## 2.4. Measures adopted to increase travellers' confidence

Based on the surveys mentioned above, a series of initiatives can alleviate users' concerns and restore their confidence in public transport. The main common concern is about the implementation of hygiene and sanitation measures to limit contagions. However, PTAs and PTOs have deployed various [actions to reduce the spread of the virus in public transport vehicles and stations](#), including:

- "Establishing new protocols for frequent and comprehensive cleaning of transit vehicles and facilities,
- Promoting or requiring the use of face masks inside public transport,
- Automating doors to prevent passengers from pressing buttons,
- Limiting vehicle capacity,
- Providing hand sanitisers in the vehicles,
- Increasing the ventilation and air renewal in the vehicles,
- Coordinating with big employers to encourage time flexibility (or establishing home office quotas) in order to flatten the demand curve in peak hours,
- Increasing the frequency of services during busier periods,
- Enabling physical distancing at stations and stops,
- Encouraging contactless payments (and sometimes prohibiting other forms)."

The primary intervention concerns public transport systems re-establishing trust with their staff and customers through sanitation measures, such as guaranteeing physical distance and obliging passengers to use masks, etc. The vast majority of operators makes sure that their assets are constantly cleaned and disinfected, and these operations should be visible to commuters. It is important to ensure that [public transport workers are provided with protective equipment](#). This is not only necessary to protect employees, but it increases the perception that safety is acknowledged as a serious matter and



thus makes users feel protected. Cleaning and disinfecting personnel should be well visible and easily identifiable. Based on previously reported surveys, users prioritise safety, therefore operators should [ensure that hygiene protocols satisfy users' concerns](#). PTAs have defined rules and specifications for operators and mobility providers for cleaning, hygiene and health protocols. This has favoured the systematic disinfection of touchpoints, rolling stock and transport hubs. In this regard, UITP has partnered with ISSA, the worldwide cleaning industry association, to survey public transport operators and provide them with [guidance on processes for cleaning and disinfection of surfaces](#) to avoid cross-contact contamination, moving from reactive to strategic long term planning. As these operations are expensive, it is important that operators make them more efficient and sustainable by improving the expertise of their staff, assessing their risks, planning the workload and putting in place evaluation mechanisms.

Since [FFP2 masks are particularly effective in limiting transmission](#), many governments are recommending, or sometimes mandating, their use on public transport. A year ago, [Austria](#) was a forerunner in this direction, making FFP2 masks mandatory in public transport, followed recently by [Italy](#), [Czech Republic](#) and some areas of Germany ([Berlin](#), [Bavaria](#)).

Communication has also affected the usage of public transport. In the first phase of the pandemic, some public authorities actually discouraged the use of public transport, either through the imposition of maximum capacity requirements due to physical distancing, or through statements suggesting citizens to limit usage. While this served to avoid overcrowding and gave the service time to reorganise, it also caused mistrust and uncertainty among users. Some PTAs have therefore tried to regain their trust through communication campaigns on infection-proof networks, highlighting stringent cleaning protocols and transparent scientific information, but also by informing travellers on the correct behaviour to be adopted during the trip to minimise risks.

In the Netherlands, the National Transport Board gathers the national government and PTA/PTO, to identify new solutions for public transport<sup>10</sup>. They agreed to have a national campaign, funded by all actors together, to convey one single message stating that the system is safe and ready.

Digital tools have been used in many cities (see chapter 3) to inform users of the real-time network occupancy, suggest alternative routes, support contact-tracing strategies and help citizens feel safe in public transport. Arranging or expanding contactless payment facilities, e-ticketing and self-service sales to replace cash has helped to avoid physical contact. This and other measures towards the digitalisation of the sector had already begun to spread in recent years, but have been accelerated by the spread of the pandemic (see chapter 3).

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<sup>10</sup> Source: interviews with POLIS members.

### 3. THE “NEW NORMAL”: OPPORTUNITIES AND INNOVATIONS FOR POST-COVID-19 SCENARIOS

#### KEY FINDINGS

- Many public authorities have already engaged in the active management of transport demand to nudge the travel choices of users and flatten peaks in ridership demand. Coordination with big employers, schools and universities encourage time flexibility and the relaxation of working hours.
- Pricing policies can discourage travel during peak hours, whereas information on crowding can help the users to adapt their travel choices. Quotas and seat reservations on rail services for peak time travels help to manage capacity.
- On a long-term approach, cities have the opportunity to redesign spaces considering the new mobility trends generated by the pandemic, such as teleworking. Integration between public transport, walking and cycling is key to deliver competitive levels of service.
- The rise of new technologies increases the quantity of data on transport habits and trajectories. Information generated by this data is important to manage safety-related aspects such as physical distancing, contactless transactions, and flexible timetables.
- The rail infrastructure in Europe, in particular the non-high-speed network, needs to be renewed and extended and made more consistent Europe-wide.
- The increased pressure for on-demand and flexible public transport services due to COVID-19 and to the aging population can boost the systematic consideration of vulnerable users.

#### 3.1. Introduction

The impacts of the pandemic, the behavioural changes of travellers, and the measures adopted by the public transport sector have accelerated existing challenges and opportunities facing public transport. This chapter presents opportunities presented by the pandemic which can be built on to support public transport in the future.

#### 3.2. Flattening the peak in ridership demand

Many public authorities have already intervened, and will continue to do so, in the management of transport demand, to **nudge the travel choices of users** and **flatten peaks in ridership demand**. Interventions were already in place before the pandemic to make the use of public transport more efficient and avoid overloading the system. COVID-19 has made this even more important, as maintaining the physical distance on the vehicles is a condition to avoid the transmission of the virus. Working on controlling the transport demand, compared to the supply, has the advantage of implementing less expensive and more flexible interventions, applicable in the short term.

There are several ways to influence users' transport demand. **Coordination with big employers, schools and universities** to encourage time flexibility and the relaxation of working hours, as well as work-from-home policies, can be an effective measure and are in place in Gothenburg, London and other cities and regions<sup>11</sup>.

<sup>11</sup> Source: interviews with POLIS members.

**Pricing policies** can also discourage travel during peak hours. These economic incentives, which already exist, have been strengthened to make it far more appealing to travel off peak.

#### Barcelona, Spain, encourages homeworking to reduce peak times

During the most intense periods of the pandemic, the municipality of Barcelona decided to encourage teleworking to avoid crowding on buses, metros, and trams during peak hours. This measure facilitates virus containment by reducing ridership on public transport and foster the utilisation of sustainable vehicles or sharing mobility. A digital tool whose aim is seeking solutions to ensure citizens' health and manage companies' mobility was also implemented.

Source: [UITP Briefing - Preparing for a better future](#)

Another way of limiting demand is through **quotas and seat reservations**- however, this system is only viable on regional trains and not on trams, metro and buses. The Irish rail company Iarnród Éireann has introduced a [seat reservation system on Intercity rail services](#) for peak time travels to manage capacity.

Another tool is **information on crowding**, with an increase in the volume of data that PTOs are making available to users, enabling them to make an informed choice on their transit options.

#### Travelplanner: the app that prevents crowds on public transport in Gothenburg, Sweden

PTAs/PTOs have made physical distancing obligatory on public transport. This measure was necessary to reduce the number of infections and protect the health of the citizens. Västtrafik, the public transport authority of West Sweden, has created an app called Travelplanner, which is useful to inform users about the crowdedness of transports trips and what is the most comfortable route, with travel times included. Such an app could help transport companies enhance health and safety of travellers and maintain transport users while providing efficient public transport options.

Source: [POLIS Public Transport Lab](#)

#### The Crowding indicator of the NS train operator in the Netherlands

The crowding indicator in the NS app shows the users the number of people they can expect on a specific train. This is represented using 1, 2 or 3 figures. A red exclamation point next to the figure indicates that the train is shorter than originally planned, so it may be more crowded than usual.

Source: [NS website](#)

### 3.3. Land use and infrastructure

#### 3.3.1. Urban public transport

In recent years, there has been a trend towards enhanced **integration between urban transport planning and wider planning** in the metropolitan area, particularly spatial and land use planning. This is essential to facilitate seamless multimodal travel.

The **public network system also improves thanks to the implementation of new infrastructural interventions**, such as the extension of the urban railway and tram lines, segregated lanes reserved for buses and trams, the modernisation of intermodal interchanges, the creation of “park & ride” structures, and facilitating access to the stations through pedestrian and cycle paths and the redesign of the surrounding spaces. It is important to increase the level of accessibility to pedestrians and cyclists, in **urban areas around public transport networks**, introducing measures to limit vehicular traffic, and making these areas attractive with shops, bars and other services.

#### The project of the Grand Paris Express, Ile-de-France

The Grand Paris Express project focuses on the public transport network and aims to rethink and redesign the scale of the metropolitan area. The purpose of this initiative is to provide the Grand Paris area with multimodal transport solutions, more integrated transport services, hence supporting a model of polycentric development.

Grand Paris Express is as an automated transit network, including 68 new stations and 200 kilometres of additional tracks, consisting of a ring route around Paris, as well as lines connecting developing neighbourhoods. Grand Paris Express also involves the extension of existing metro lines, with 4 new lines circling the capital and providing connections with Paris’ three airports, the business districts and research clusters. It will service 165,000 companies and transport 2 million commuters daily.

Source: [POLIS](#)

**New mobility trends generated by the pandemic**, such as teleworking, could lead to adapting land-use policies in line with the [15-minute city concept](#) (when this is suitable based on the city’s configuration). Together with policies on teleworking and flexible working hours, this could influence the choices on the location of residence and workplace and tackle the issue of urban sprawl, which has created larger distances between employer and employee. **Mixed-use development of urban areas** reduces the distance people have to travel to reach services, leisure, shopping, etc., thus reducing the use of private cars.

As a trend caused by COVID-19, **increasing journeys between outer neighbourhoods** rather than to the city centres have already been observed<sup>12</sup>. This is an issue for the lack of public transport offer to connect peripheral areas, and in this regard, multi and/or intermodality solutions are required (see next section).

Shifting the use of urban space through **street reallocation and alternative use for kerbsides** could be an effective way of reinvigorating the use of public transport and active mobility as it discourages car usage. The COVID Mobility Works database maps over [572 of so-called “open streets” initiatives](#) in 245 cities around the world: spaces in the cities have been lifted from car usage and assigned to public transport priority lanes, cyclists and pedestrians. Initiated as temporary measures to ensure physical distancing, many of them were made permanent. For example, the [Brussels Region](#) implemented a mobility plan changing the priority usage of public space in the Pentagon, an area of the city centre

<sup>12</sup> Source: interviews with POLIS members.

where pavements have been opened to the transit of cyclists and pedestrians, and the speed limit for cars has been reduced to 30 km/h to ensure safe travel for those using the shared space. Similarly, In May 2020, [the city of Milan released its Open Streets project](#), which prioritises movement on foot and by bike.

For these initiatives to last in the long-term, there is a need for an integrated governance model, which facilitates multiscale, **coordinated planning between transport departments and urban planning**. To achieve this, [Sustainable Urban Mobility Plans \(SUMPs\)](#) could be expanded and updated including spatial and accessibility aspects.

### 3.3.2. Rail passenger transport

The COVID-19 crisis has highlighted the importance of efficient and resilient infrastructure. **Rail infrastructure in Europe, in particular the non-high-speed network, needs to be renewed and extended.** [In Italy, state funding for the regional railway service decreased by 21.5% between 2009 and 2019](#), while passenger numbers grew by more than 8%. From 2009 to 2020, available resources for road and rail transport dropped from 6.2 billion euros to less than 4.9 billion.

The development of the high-speed network and the related infrastructure is vital to make train travel a practical alternative to aviation, thus supporting the overall decarbonisation of the transport sector. Some countries are already moving in this direction: [France is planning to ban short-haul domestic flights](#), while in Sweden, domestic air travel had already decreased significantly following the [flight-shaming movement](#).

Railways need [efficient infrastructure to be able to offer high-speed connections between major cities](#). Furthermore, intra- and inter-regional transport needs an effective and attractive infrastructure, so that the regional rail network constitutes an accessible alternative to road transport for rural areas.

Addressing financial costs for train operators is also key to supporting the industry. In order to mitigate the economic impact of the COVID-19 pandemic, EU Regulation 2020/1429 reduces the financial burden on rail undertakings by **temporarily easing rules on charges**. In some cases, [track access charges are completely waived \(France, Austria\)](#), while in others they have been reduced. This is a temporary measure that liberates resources for service improvement and innovation by rail undertakings, and avoids permanently penalising infrastructure managers and affecting their capability for investment. To address this issue, time-limited discounts, foreseen by [Directive 2012/34/EU](#), had already been applied before and could be used more systematically to encourage the development of new rail services in the future. A discussion in the coming months will be required to find a balance (see recommendations in chapter 4).

The European Court of Auditors found a [lack of coordination of cross-border rail infrastructure projects](#). According to the report, Member states prioritise national projects while neglecting gaps in cross-border transit, leading to inconsistent development between different countries. EU action is essential to guarantee coordinated intervention. Meanwhile, the [revision of the TEN-T regulation](#) will have an impact on the core network corridors, which includes 88 major urban nodes, and the TEN-T comprehensive rail network, which extends attention to minor nodes. To support the implementation of the EU infrastructural policy, the [Connecting Europe Facility \(CEF\)](#) has been established as a key EU funding instrument for infrastructure investments at European level.

Interventions in the **development of urban nodes, also intended as hubs of the public transport network**, are also fundamental elements of these European policies: the new [European Urban Mobility Framework](#) released on 14 December 2021, upholds the need to strengthen the role of stations and terminals as urban mobility hubs.

### OV-fiets in the Netherlands: multimodal integration of train and bikes

OV-fiets (Dutch for “bicycle”) is a rental bicycle intended for the last leg of urban journeys. When the train arrives at the station, users can rent an OV-bicycle in almost 300 rental locations in the Netherlands at stations, at bus or metro stops, and at park-and-ride (P+R) facilities. The system, introduced by the ProRail railway infrastructure manager and the NS transport company in 2000, consists of a fleet of bicycles that now has almost 21,000 vehicles. The OV-chipcard (public transport card) is enough to rent two at a cost of 3.85 euro per day. The stations, now largely automated, have transformed the experiment into a consolidated and constantly growing mobility model.

According to a recent survey by operator NS, at the time of the COVID-19 crisis, public opinion on various means of transport has changed with passengers taking a more positive outlook on train travel, OV-bicycles and other shared bicycles, and a more negative view of car travel. Public transport use is lower, but there is a clear shift towards personal and OV-bicycles.

In the Municipality of Amsterdam, cars from Green Wheels can also be rented using the public transport card, thus making it easier for the user to use various modes of transport with one single payment system.

Source : [OV-Fiets system](#), [NS survey](#)

## 3.4. Integration with other modes and (cross-border) connectivity

### 3.4.1. Urban public transport

Integration between public transport and active travel is key to deliver competitive levels of service and ensure a public transport network that connects residential neighbourhoods with one another, and to the centre. The demand for these travel trajectories has increased during the pandemic, as people seek to avoid crowded places, or in many cases no longer have to attend central offices. In order to avoid the use of private cars for such trips, support for last-mile travel is necessary, and requires a systematic integration between the different modes of transport.

Alongside improvements to areas around public transport hubs, bus and rail stations, mentioned in the previous section, further measures are available. **Integrated ticketing and service information** allows for a single ticket to be used for multiple modes of transport while also providing travellers with information about their multi-modal journeys. Ticketing working across different modes and with different operators, including bike-sharing schemes would make it easier for users to combine them.

**Integration of transit modes can be developed on a range of levels.** Coordinating timetables between modes of transit can minimise waiting times in the transition from one vehicle to another. **Physical integration** also ensures that stations and stops are designed to accelerate movement between public transport services and other forms of transit. Furthermore, authorising the transportation of bicycles on trams, metro and buses is key to increasing their use. Transport hubs and public transport stops could provide protected and easily accessible **parking for bikes, repair shops and other bike services**.

As an additional service, PTAs and PTOs have the opportunity to accelerate the deployment of new business and operational models for **on-demand public transport in conjunction with shared mobility services**. Several solutions and business models have been tested and adopted, such as on-demand ride-sharing services, peer-to-peer vehicle rental, taxi services, and B2C vehicle short-term rentals. This integration can be made easier via data interoperability, sharing and integration, and via



the application of new smartphone technologies. Their potential evolution into **Mobility-as-a-Service** (MaaS<sup>13</sup>) systems simplifies the usability and navigation of the diverse transport services in the urban transport system from the user's perspective. It can be used to promote more sustainable transport options, such as public transport in combination with cycling or new mobility services. Local authorities are taking different approaches to the development of MaaS platforms. While EMT Madrid has developed its own platform, others such as Helsinki have used 3<sup>rd</sup> party providers<sup>14</sup>. Integrating these technological solutions requires a careful redefinition of the governance mechanisms of the transport offer.

#### Madrid, Spain, develops app for improving travel information

The Municipal Transport Company of Madrid (EMT) has developed the Madrid Mobility 360 app, an application which allows users to obtain information on bus occupancy both while calculating a route and while waiting at the bus stop. This assists the city in flattening the use of public transport during rush hour, steering the Madrid towards a sustainable (and mobile) COVID-19 recovery.

The application is also an innovative foray into MaaS, extending EMT's already innovative MaaS offerings. This smartphone application combines public transport with free-floating shared mobility services, and it is possible to make payments through the App, purchasing bus tickets and BiciMAD or BiciMAD Go services.

Source: [POLIS](#)

### 3.4.2. Rail passenger transport

In many cases, especially in Western Europe, existing infrastructure is not utilised to its full potential. A study by the European Commission reveals that [149 cross-border links are non-operational](#). This lack of international connections is a major obstacle for international train travel. Rail passenger traffic is mostly domestic, with [only 6%](#) crossing borders in 2016. Therefore, **rail operators tend to channel their core efforts towards domestic services**. In fact, PSOs, which ensure the performance of services that are not commercially viable, are mainly used for regional and national rail connections. They are more difficult to define for international and long-distance services, as they involve multiple operators and different regulatory frameworks. [Only a few countries](#) reported having a PSO on international services. Furthermore, the lack of compatible rolling stock is also preventing the development of interconnected rail services.

#### The new East-West international rail line: from Warsaw to Paris

In Europe, during the COVID-19 pandemic, train services were set back, especially regional rail services. Moreover, European railway infrastructure is not utilised to its full potential. Several European cities are connected through rail networks, however, air transport for long distance routes is still popular, also because of prices and lack of actual trains. In order to improve the international rail network, a service between Warsaw and Paris would be an apt pilot project to connect four European cities. The line will reach Warsaw, Berlin, Brussels and finally Paris in 12h 45m through the upgrading of existing routes. Fostering passenger transports on railroads could be a solution to encourage the use of more sustainable means of transport.

Source: [Hop on the train: A Rail Renaissance for Europe](#)

<sup>13</sup> The MaaS concept promotes the combination of different transport services into one single mobile platform.

<sup>14</sup> POLIS [Public Transport Lab](#) discussion.

**The revitalisation of night trains** will also support cross-border travel. These services were, until a few years ago, the main element of connection between international destinations in Europe; however, [they have been progressively discontinued](#) when high-speed networks began to expand, and the rise of commercial (lower cost) airlines took place in the 90s. The development of such a network requires affordable fares and a high quality of service. Given that rail operators pay for the use of infrastructure by the kilometre, the establishment of longer-than-average routes, i.e., those that would cover night trains, is not encouraged. Again, this would require reduced track access charges (see previous section). Taking into account COVID-19 requirements and measures, night journeys, which usually take place in private train compartments, offer greater guarantees of containment of the virus than air travel, at least as a way to avoid proximity between passengers.

#### The night train network in Austria

From 2017-2018 onward, the demand for night trains has increased, according to the Austrian Railways (Österreichische Bundesbahnen, ÖBB). ÖBB, which purchased the decommissioned fleet from DB and gradually modernized it, now operates 19 "Nightjet" night trains, such that connects Berlin to Vienna in about 12 hours, and a route from Munich to Rome which takes 9 hours. Both with tickets that usually range from 10 to 200 euros each way. Due to the increased demand, other railway companies have begun to emulate this model, to offer trains of this type, such as the Zurich-Amsterdam and the Munich-Paris route, which will be active from next December.

Source: [Wall Street Journal](#)

## 3.5. Digitalisation

### 3.5.1. Urban public transport

The transport sector as a whole benefits from digitalisation and deployment of data, assisting traffic flow management, identifying new business opportunities, and planning for innovation, new services and business models. [Notwithstanding the pandemic, digitisation generates significant opportunities for urban public transport](#), for **predictive maintenance and data-based optimisation** of the energy management and of the route, and also for maximising services for users, such as **integrated ticketing, real-data information**, etc. New digitally driven solutions are emerging for the **optimisation of public transport, including machine learning that maps ridership in real time**, supporting optimisation and seamless multimodal mobility solutions.

The rise of new technologies increases the quantity of **data on transport habits and trajectories**, which has been particularly useful for capturing COVID-19 related disruptions and organising response strategies. Information and data generated are important to manage safety-related aspects such as **physical distancing, contactless transactions, and flexible timetables**. For example, information regarding the crowdedness of a public transport line at certain hours can optimise service use, while intelligent ticketing can reduce the risk of contagion by avoiding the use of counters and vending machines at stations.

To achieve a large-scale deployment of digital solutions, a **framework allowing for the aggregation of new sources of data** from infrastructure, vehicles, and smartphones is needed, as well as data-sharing principles to facilitate the exchange of data and information. National and sub-national governments are often in possession of vast amounts of transport data, and integrating this with data collection from other mobility services and ensuring that information is widely available can help



**analyse and understand transport patterns and streamline the local planning process.** Setting up platforms for urban data sharing through national or subnational governments is another means of improving information efficiency, and hence the success of planning and implementation efforts. At the same time, private mobility operators also have access to much data on modal share and transport patterns. Establishing reciprocal data sharing frameworks between public and private stakeholders also improves service provision.

### 3.5.2. Rail passenger transport

The EC's [Sustainable and Smart Mobility Strategy \(SSMS\)](#) communication proposes the revision of digitalisation standards for signalling, traffic management and automatic train operations. The final report on the [contribution of the rail sector to deliver EU policy priorities at local and regional level](#) by the Committee of the Regions has identified primary interventions required for future digitalisation.

The digitalisation of the European railway is a necessary step to ensure the competitiveness of the sector. **Digitalisation increases the capacity of the infrastructure between 20-50%**, according to different estimates ([McKinsey](#), [ERA](#)), without the need to build additional tracks. This is because such digitalisation streamlines incident handling, automation, and optimises the response to customer requirements, which are changing due to the pandemic, and for supporting multi-modal solutions.

Furthermore, [track access charges could be permanently reduced](#) thanks to the benefits in terms of **lower costs that digitalisation brings for operations and network maintenance**. Digital train control and traffic management systems are cheaper and more efficient, supporting the environmental sustainability of the industry.

[Digital rail infrastructure will also foster autonomous train operations, which further increase capacity and safety](#). The need to comply with the COVID-19 protocols regarding distancing requires even greater attention to the opportunities to optimise operations.

The priority identified by the sector is the **deployment of the European rail traffic management system (ERTMS)** on a large scale. The ERTMS is a system for the management, control and protection of railway traffic and related signalling on board, designed to replace the circulation and safety systems of European railways. Systems have often proved incompatible, and this measure will ensure the interoperability of trains. [So far, the process has been slow](#), and just 10,000 km of European Train Control System (ETCS)<sup>15</sup> have been deployed so far, while an additional 50,000 km are expected by 2030. The SSMS states that *"the roll out of the ERTMS (...) remains a priority for the Commission and for Next Generation EU"*. The rapid and widespread adoption of this system can be supported by regulatory interventions, which provide a central role for the digitalisation of the system.

**Multi-modal and integrated ticketing systems** need a high level of **data interoperability** between various railway platforms and between rail and other transit modes. For example, the integration of scheduling information is key for a seamless multimodal transport system, and can favour the increase of the rail market share for passenger transport.

However, digitalisation brings high security risks, often from external attacks. For this reason, the implementation of **cyber security** protocols for the railway systems is required alongside the introduction of new technologies and automated processes.

<sup>15</sup> ETCS is the signalling and control component of the ERTMS.

### 3.6. Gender & social inclusion

**Upgrades and adaptations must also take into account different passenger needs, to ensure all user groups have access to transit options. Gender-related differences**, such as physical and social characteristics, result in inequalities in mobility opportunities. [Women walk and use public transportation more than men](#), therefore their needs in terms of accessibility of vehicles, destinations and trajectories of public transport, and safety and security must be fully considered. Moreover, [women tend to prefer flexible modes that facilitate multimodal trips and travel with children and more vulnerable users](#), compared to men. Nevertheless, the design of transport infrastructure and services often do not accommodate their needs and preferences. Safety while travelling is also a considerable concern for women, an issue that has been highlighted by [Catalonia's survey into harassment on public transport](#). [Sexual harassment has repeatedly been identified as a key concern for public transport users](#), particularly for women. Women rely heavily on public transport, and account for more than 50% of users in many member states. An analysis based on data collected by PTAs / PTOs as well as mobility service operators is needed to assess whether specific gender requirements are being met, and how innovation on mobility could be designed and developed in this direction.

In general, for any innovation process in mobility it is essential to consider equity and inclusion. **People with disabilities are vulnerable users** at risk of social exclusion. There are many barriers that hinder accessibility to key destinations and services, including the use of public transport. Although accessible mobility services and infrastructures are becoming more common in Europe, [services increasing their flexibility](#) would be able to adapt more easily to the needs and requirements of disabled people. Furthermore, inclusion often depends on the behaviour and awareness of other users. Research investigating the challenges disabled people face when it comes to public transport accessibility found that [one in four disabled persons does not use public transport due to negative attitudes from other passengers](#). As a SUMP objective is to “[ensure that all citizens are offered transport options that enable access to key destinations and services](#)”, a dedicated [topic guide](#) on this matter would be useful. The increased need for on-demand and flexible public transport services due to COVID-19 and to the aging population can provide a boost to the systematic consideration of these users, who must also be actively involved in the identification of needs and in the design of solutions, as is being conducted by several European projects<sup>16</sup>.

The **digital divide between and within urban areas** represent a challenge for local authorities. There needs to be a far greater understanding of the needs of various vulnerable users and social groups, and consideration for how these needs manifest at the neighbourhood-level and peri- / sub-urban level. This will support social and economic inclusion for those living in more peripheral areas. Without a satisfactory public transport offer, these groups will find themselves even further excluded from urban life, and likely augment private car use. New transport solutions involving social innovation and ICT tools provide the opportunity to raise the level of accessibility, inclusiveness and equity of mobility.

<sup>16</sup> INCLUSION project: <http://h2020-inclusion.eu/inclusion-pilot-labs/>; TRIPS project: <https://trips-project.eu/>.

## 4. RECOMMENDATIONS FOR EU POLICY MAKERS

### KEY FINDINGS

- This review exposes the need to capitalise on the large - and growing - quantity and quality of studies exploring the limited risks on public transport, and translate them into convincing information campaigns. This will be essential to combat misinformation around the safety of services and encourage higher network usage.
- Monitoring mobility patterns can support effective government decision making, management and operations, providing PTOs and PTAs with evidence-based decision making. This will also ensure services are designed according to passenger requirements and needs.
- Following a period of temporary financial support, public transport stakeholders should take the opportunity to define a framework to facilitate stable financing and funding for public transport. This should ensure that national and regional authorities work together to include a higher share of public transport-focussed investments in their plans. This could be supported through the commissioning of a study to assess the effectiveness of recent measures and which of them should be continued in the future.
- Public transport must become a competitive mobility option. The sector should take this opportunity to enhance flexibility, service quality and technological tools. This should include night services, MaaS services, high-speed routes and links between urban and per-urban areas. It is advisable that the cost of services is continually assessed to ensure affordability.
- National and local authorities should support the implementation of public transport-related infrastructural projects in a more systematic way, providing for dedicated timelines and funding for all urban nodes of the TEN-T network.
- Data sharing protocols should also be encouraged and regulated with a defined set of minimum data that operators are requested to share to ensure the seamless cross-border movement of passengers across the EU. These would ease data sharing while establishing systemised ways of collaborating in a GDPR compliant way.

### 4.1. Introduction

This chapter provides recommendations on how authorities, notably at the EU level, can support the recovery of the public transport sector. The recommendations draw from previous chapters and focus on what could be done to support the financial position of the operators (linked to chapter 1), to rebuild passenger confidence in public transport (linked to chapter 2), to improve the integration, connectivity and infrastructure of the sector, as well as to strengthen digitalisation and enhance interoperability (linked to chapter 3). They define concrete actions and instruments for practical implementation of EU policy.

In the course of drafting this thematic briefing, Omicron has become the main coronavirus strain, plunging Europe back into uncertainty (see section 2.1). It is essential to stress that these recommendations aim at providing guidance to policy makers on how to shape a long-term vision to relaunch and promote public transport and rail transport. Nevertheless, they try to take into account, as much as possible, the uncertainties of the current situation.

## 4.2. Supporting the financial position of operators

COVID-19 has posed unprecedented financial challenges to the public transport sector, which have been discussed in great detail across this paper. While, as we have demonstrated, each city and region has experienced this slightly differently, financial difficulties have been experienced across the board.

**Ensuring short-term financial viability of the public transport sector**, given the reduction in travel demand and revenues, is a critical challenge for operators. This will require specific budget allocation, also to financially support workers to preserve their jobs in the short term. As this document has exhibited, for 2020, almost all Member States have covered them, yet uncertainty continues in 2021 and 2022 about whether and how this will happen. This will have to take into account the structural impacts described above, and define a common approach on how to revise these funding mechanisms.

In the longer term, cooperation on all levels is needed to define a **framework to address the medium-term losses of public transport operators** and **facilitate stable financing and funding for public transport**. The EU oversees a range of funds available to Member States and infrastructure managers in the coming years, such as Regional Development Funds, Cohesion Funds, the Connecting Europe Facility, and the Recovery and Resilience Facility, and is therefore in a position to encourage **national and regional authorities to include a higher share of public transport-focussed investments in their plans**. This can be approached through encouragement of modal shift targets and policy measures to facilitate their implementation, in line with the ambitious targets defined in the Green Deal and the SSMS. **PTAs can be supported by ensuring that EU funds for urban and metropolitan systems**, as well as urban nodes under the TEN-T regulation, are directly managed by the relevant local authorities.

**Practical support for accessing funding mechanisms will also be of importance.** At present, budgets for electrification and digitalisation are not organised in a simple and straightforward way. They are fragmented across programs, institutions and instruments.

This streamlining of budgets will be essential for pursuing climate targets. Although COVID-19-related concerns have dominated PTA and PTO agendas in the last couple of years, reducing carbon emissions remains a central issue, and investment in alternative fuels is required. However, for buses and city fleets, prices of clean vehicles remain prohibitive. In this regard, EU guidelines and programmes could **support the development of financing schemes for the purchase and procurement of zero-emission vehicles** and other non-polluting technologies. EU funding instruments such as [InvestEU](#) and the [CEF](#) could steer private and commercial investments towards zero-emission vehicles and deployment of related charging infrastructure.

As this briefing has discussed, due to the emergence of the crisis, the Commission relaxed the provisions regulating state aid. Although the advent of omicron has increased uncertainty over the short term, the emergency phase of the pandemic appears to be over, and the [likely approach of the endemic phase](#) requires **structural interventions to avoid distortions to the single market**. Some countries may be more willing to provide state aid, with the risk of generating a comparative advantage for some players. Moreover, some operators present in several countries could benefit from the aid obtained in one country and exploit it in another, triggering mechanisms of unfair competition. This paper has begun to outline the nature of assistance packages across the EU; however, **defining a united way forward demands a dedicated study assessing the impacts of financial aid, examining recent and current measures**, such as the compensation of financial losses of PTOs. This will support a taking stock and movement forward towards backing public transport in its role in achieving targets defined in the Green Deal.

### 4.3. Rebuilding passenger confidence in public transport

It is essential to develop a close and continuous **link with virus' modelling experts** to provide evidence-based interventions and protocols in terms of the use of different transport modes. COVID-19 is constantly evolving, and the responses should be timely developed and modified. This requires capitalising on the unprecedented quantity and quality of studies and scientific evidence produced about the (limited) risks of contracting COVID-19 on public transport. It is essential to translate them into **convincing public information campaigns** to promote public transport usage.

As discussed, public transport has suffered significant reductions in ridership during the pandemic, which have continued even as countries begin to combat the spread of COVID-19. Information campaigns are needed to inform users about the latest evidence on the actual risk of contracting the virus on public transport (see section 2.2), and the measures put in place to minimise it. Although, as this briefing has highlighted, public transport attitudes and usage patterns differ across the EU, communication should be as consistent as possible when approaching safety of services, and encourage similar approaches throughout different cities and countries.

Combatting reluctance to use services due to COVID-19 related reasons also requires the enhanced use of data. Case studies from Member States in this document reveal that real-time data collection and analysis has demonstrated its effectiveness for monitoring mobility behaviour. **Monitoring mobility patterns and compliance with physical distancing rules** can support effective government decision making, management and operations, exhibiting the actions and policies which are effective and those which require adaptations. This is also likely to support user confidence and satisfaction with services as they are provided with more comprehensive information on crowding, accessibility and timings of the transit options available.

Using this data and other forms of data collection, the perception and priorities of users should be routinely detected and taken into consideration by the PTAs and PTOs. Surveys that provide for a specific profiling and segmentation of users are needed to remodel the offer in a flexible way that guarantees accessibility for all. This demands going beyond technological innovation, focussing on capturing and deploying data for **understanding community needs, fulfilling user transport demands, and responding to ridership patterns**. The imbalance in those affected by the pandemic and their subsequent mobility needs (in terms of health profile, gender, economic background, and other socio-political factors) has revealed the necessity of ensuring public transport networks cater for all. As this document has also shown, risk perception differs extensively between transport modes. Services should therefore be adapted on the basis of different needs and expectations, including considerations on gender and social inclusion.

The EU institutions could regularly [use the Eurobarometer for public opinion polls on public transport](#), as well as put in place mechanisms facilitating the consolidation of other relevant surveys and behavioural studies from trusted sources.

### 4.4. Managing transport demand to flatten the peak

Overcrowding is one of the aspects that most discourage the use of public transport, even before COVID-19, and as we have seen in chapter 2, it is the element that generates the most fear among users regarding the risk of infection. As the increase in vehicle and carriage supply is not possible, at least in the short term, due to financial shortage, **managing transport demand to flatten the peak becomes essential** to avoid saturating vehicle capacity and making public transport trips more appealing. As we have seen, the most effective and immediate interventions thus far have involved agreements with the mobility managers of schools and companies to stagger school day start and end, to allow flexible

working hours and encourage teleworking policies, as these flatten demand during peak hours and alleviate the burden on public transport. The, at present ad-hoc-, measures could be supported by a **European-wide guideline for defining framework agreements** between public authorities and these bodies, providing examples of those that have proved successful so far. These would build on the types of initiatives discussed in this document, to provide a more comprehensive investigation into the range of partnerships possible.

#### 4.5. Improving integration and infrastructure of urban public transport

PTAs' and local authorities' activities extend beyond public transport planning, which is required for coordinating policy deployment for sustainable urban mobility, including measures such as electrification, soft modes and access regulation. The EU should **favour a coordinated local response to COVID-19-related concerns** by supporting cooperation among PTAs via existing networks. The coordinating power of the EU can also be harnessed to facilitate **the integration between different modes** of transport at urban level, as well as between urban and interurban public transport. A rapid and EU-led process which **facilitates the deployment of regulated MaaS services could support such a goal**. Users should have access to simple, reliable and comprehensive online platforms to check timetables, prices, real-time information and to purchase international rail services, but also urban public transport tickets when they travel in other cities and countries. This can also help **enhancing flexibility deriving from on-demand and sharing services** complementary to public transport, thus further deterring the use of private passenger vehicles.

As for urban public transport, in addition to integration with other modes of transport, the **improvement of the performance of the sector also involves large infrastructural projects**, such as the Grand Paris illustrated in section 3.3.1. These need certain and long-term planning and financing, as is also the case for electrification of the bus fleet. So far, the deployment and upscale of these projects has been subject to the initiative of individual cities and countries, however, **the EU is in a good position to enable the implementation of public transport-related infrastructural projects in a systematic way**, providing dedicated timing and funding, particularly for urban nodes of the TEN-T network. This type of requirement could be linked to both the national plans for the Recovery Fund and the TEN-T revision. In the short to medium term, the PTAs could carry out lighter interventions, such as the increase of bus lanes.

#### 4.6. Improving rail (cross-border) connectivity and infrastructure

In the SSMS, the Commission has included several actions for enabling the recovery, the expansion and connectivity of the rail passenger sector<sup>17</sup>. In order to **accelerate the development of the railway network as a single European system**, also in line with the strategy related to the TEN-T network, the Commission and Member States now have the opportunity to develop concrete measures to speed up the completion of necessary cross-border train connections and services, eliminate bottlenecks and promote the reintroduction of night trains throughout Europe. A **Eurocontrol-like traffic control and coordination authority for international rail transport** could help promote routes that are not sufficiently exploited, also through PSOs at the European level, and favour the integration with urban and peri-urban public transport services.

<sup>17</sup> These are 1) conditions for transport operators to offer travellers by 2030 carbon-neutral choices for scheduled collective travel below 500 km within the EU; 2) proposal on the revision of the energy taxation directive; 3) intention to propose legislation in 2022 to support the development of multimodal digital mobility services; 4) a revision of the technical specifications for rail interoperability in 2022 to integrate digitalisation and modernisation regarding rail rolling stock, rail infrastructure, command and signalling systems (ERTMS).



With regard to infrastructural interventions, this also entails **improving the interconnectivity of railway routes in Europe**, through the automation of operations and the interoperability of infrastructure and vehicles. The EU can play a central role in encouraging the extension of the high-speed network, while at the same time increasing the capillarity of the peri-urban and regional ones – as well as the relaunch of quality night routes. Moreover, **better coordination of timetables, definition of framework agreements for international PSOs, and interoperability protocols for compatible rolling stock** are needed to integrate regional and long-distance trains and therefore improve connectivity.

In September 2020, the German Presidency of the Council of the EU presented the **TransEuropeExpress (TEE) 2.0**, a network of direct trans-continental services connecting Europe across national borders, showing nearly 40 existing – and possible new – international rail passenger services. **The EU can now act on this to support its deployment, facilitating coordination between infrastructure managers** on slot management and the type of rolling stock needed, creating an easily accessible pool of information for train operators. The coordination with the TEN-T program and implementation of the envisaged Rail Connectivity Index can be deployed to assess the level of integration between urban hubs.

This is also an opportune moment for a **review the EU Regulation on track access charges**, which with COVID-19 have been temporarily suspended. In fact, Member States apply rates that exceed the simple compensation of the marginal cost. **Guidelines on the methods for calculating charges** would help to avoid increasing the cost of the service and thus favouring other sectors.

Apart from exceptional cases such as the first phase of the pandemic, freedom of movement within the EU remains critical. **Reducing paperwork for transport workers, while guaranteeing their safety**, is the first step. However, cross-border travel by rail should be in general easier, cheaper and more frequent, to discourage mobility by private vehicle.

#### 4.7. Strengthening digitalisation via interoperable and open frameworks

**The roll-out of new digital payment and ticketing systems will also support the recovery of public transport as fear of - and risk of - infection continues in the short term.** As we have witnessed through the examples provided in chapter 3, the use of contactless solutions, such as contactless payments, ticket checks, apps that indicate public transport occupancy, etc. favours smoother access and less risky interactions. Use of such technical interventions will be supported by ensuring they **fall within the minimum service standards required**. This may require a dedicated budget, as technologies are currently expensive to roll out at a mass scale.

The Commission's 2021 Work Programme provides the **revision of the Intelligent Transport Systems (ITS) Directive (by November 2021) and proposes a multimodal ticketing initiative**. This initiative could introduce a legal framework for booking, ticketing and payment services in unison, to define which data is to be shared and that this is done in an open format. This would allow other operators to integrate them into their platforms and sell travel tickets as third parties (see MaaS). In this regard, **the EU could define a set of minimum data that operators must share** to ensure the ease of cross-border travel and in foreign countries. Currently, via the 1926/2017 Delegated Regulation of the ITS Directive, only some basic data need to be shared. As the COVID-19 situation has exposed the enduring reluctance of many to use public transport, the obligation should be extended to date, dynamic travel and traffic data to further enhance the quality of services. Especially in the event of disruptions, it is essential that users can readjust their travel choices by using real time information.



**EU Guidelines on data-sharing principles are needed to systematise the approach to data and information exchange** between the public and private sector, which in turn enables an evidence-based policy making process. The pandemic has shown that these data are also important to manage safety-related aspects such as physical distancing, contactless transactions, and flexible timetables. For example, information regarding the crowdedness of a transit line at certain hours can optimise the offer, or intelligent ticketing can reduce the risk of contagion by avoiding the usage of counters and vending machines at stations.

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This thematic briefing provides the European Parliament's Committee on Transport and Tourism (TRAN) with an overview of the repercussions of the COVID-19 pandemic on the public transport sector, as well as policy recommendations to address the challenges emerging from the crisis.

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