25
1991
2016

ACEA

European
Automobile
Manufacturers
Association

MANIFESTO

For Clean, Safe and Smart Mobility

TABLE OF CONTENTS

What progress has been made?

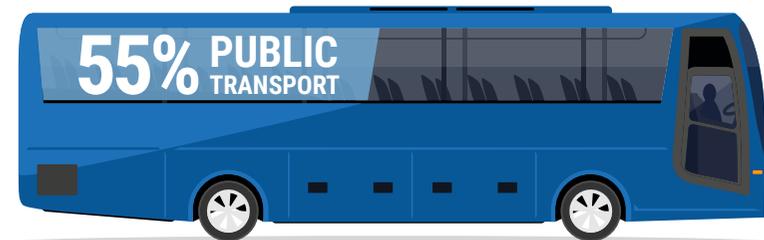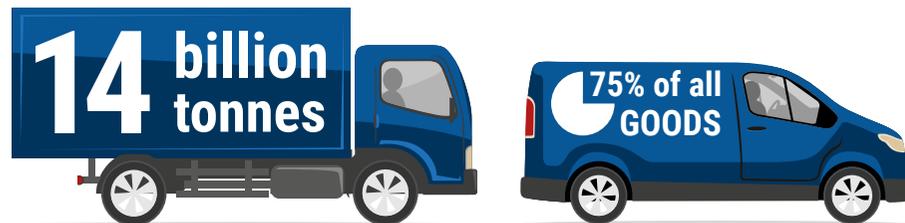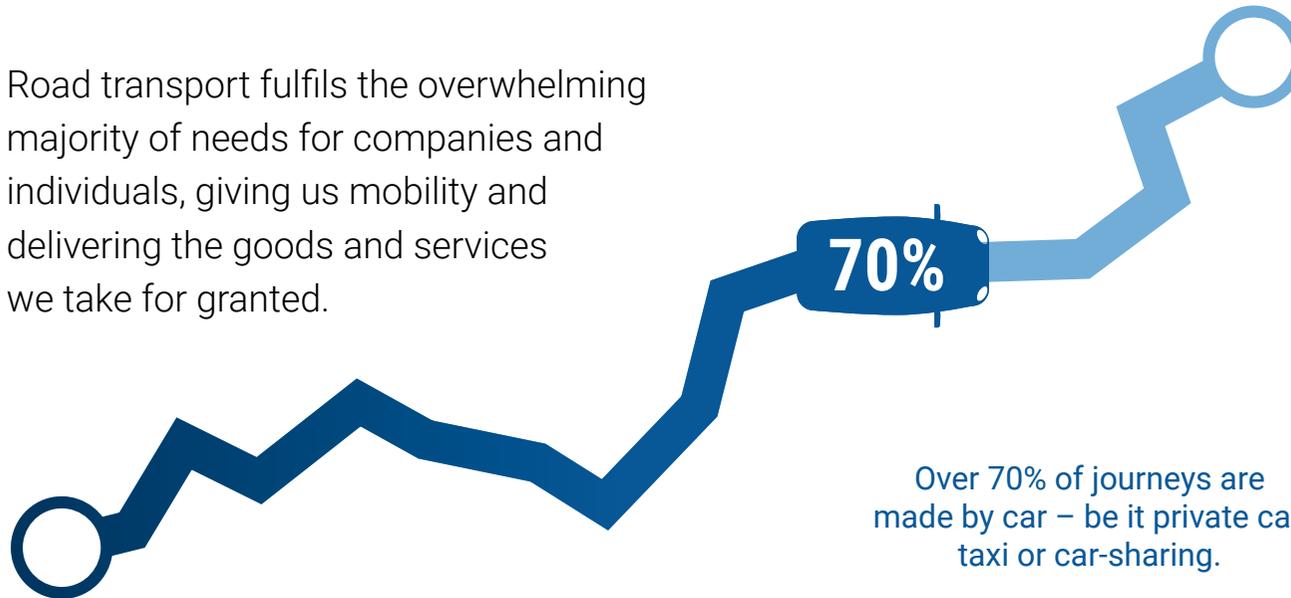## Where are we today? The challenges

What will tomorrow bring?

How do we get there?

WHAT PROGRESS HAS BEEN MADE?

A look back over time

Road transport fulfils the overwhelming majority of needs for companies and individuals, giving us mobility and delivering the goods and services we take for granted.

70%

Over 70% of journeys are made by car – be it private car, taxi or car-sharing.

13,000km

JAN DEC

Cars are our number one source of mobility, taking the average European almost 13,000 kilometres a year.

14 billion tonnes

75% of all GOODS

Trucks and vans move more than 14 billion tonnes of goods per year, delivering 75% of all goods carried over land in Europe.

55% PUBLIC TRANSPORT

Buses and coaches account for 55% of public transport in Europe.

Clean

CO2 emissions have been cut by improving engine efficiency, developing advanced powertrains with ultra-low carbon footprints, and building lighter vehicles. These savings have been achieved in conjunction with strong decreases in pollutants and noise levels.

Alternative fuel vehicles

In 2015, more than half a million alternative fuel vehicles were registered in the EU, up 20% compared to 2014.

+20%

2014>2015
+20%

Pollutant emissions

Over the last 15 years, NOx limits for diesel car engines have been reduced by 84%, and particulates by 90%.

NOx -84%

-90% PM

Noise reduction

Noise from motor vehicles has been reduced by 90% since 1970.

-90%

Pollutant emissions

Today's trucks now emit 95% less nitrogen oxides (NOx) and 98% less particulates (PM) than in the early 1990s.

NOx -95%

-98% PM

-60%

1995

2015

EURO 6

CO2 -36%

NOx -40%

CO2 emissions

In 2015, average new car emissions were 119.6g CO2/km compared to 186g CO2/km in 1995 – a 36% decrease.

Real-world emissions

Although there is a difference between the laboratory tests used to measure emissions and real-world results, real-world emissions are also clearly on a downward trend. According to tests of on-road emissions, Euro 6 vehicles emit at least 40% less nitrogen oxides (NOx) than Euro 3 vehicles.

Fuel consumption

Fuel consumption from today's heavy-duty vehicles is down over 60% since 1965.

Clean

Manufacturers have significantly reduced the environmental impact of vehicle production, with recycling being part of the 'design for sustainability' concept.
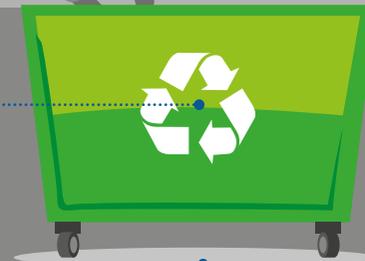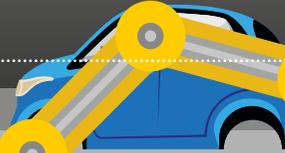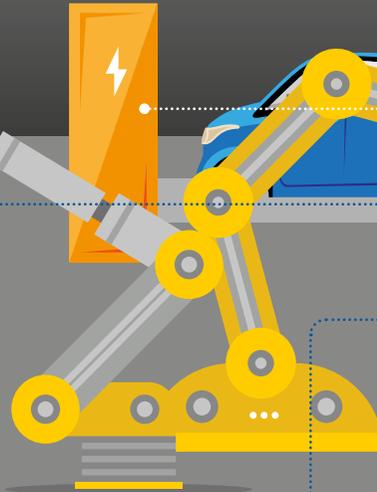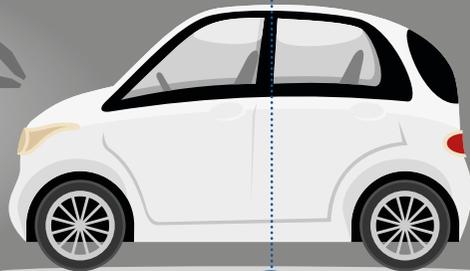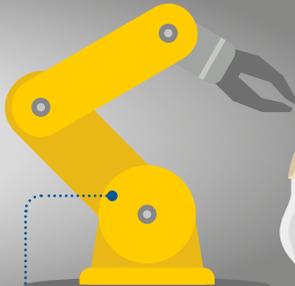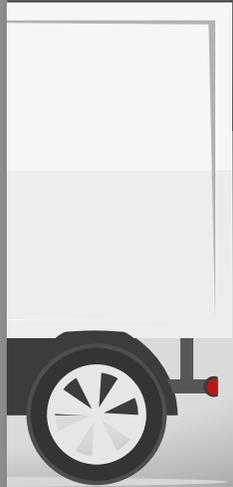
Water consumption

Water consumption per car produced has been reduced by 35.9% since 2006.

-35.9%

Energy consumption

Energy consumption per car produced has been decreased by 14.6% over the last decade.

-14.6%

-28%

CO2 from production

CO_2 emissions per car produced dropped by 28% over the last decade.

-80%

Remanufacturing

Auto manufacturers are actively contributing to resource efficiency by remanufacturing a wide variety of parts, reducing energy consumption by up to 80%.

-88% **-90%**

Remanufacturing

Remanufacturing requires 88% less water and over 90% less chemicals.

Waste reduction

Only a limited amount of automotive waste is sent to landfill, even though some 8 million vehicles reach the end of their lives each year.

Safe

A range of built in mechanisms protect occupants in a crash (airbags, adaptive restraint systems), and give more control to the driver in emergency situations (anti-lock braking systems and electronic stability control).

Euro NCAP

Most vehicles now gain a maximum 5-star rating on Euro NCAP crash tests.

ADAS

Advanced Driver Assistant Systems (ADAS) use radar technology and cameras to monitor the vehicle surroundings to prevent accidents.

Safer roads

In the last 30 years, Europe's roads have become far safer, despite a 300% increase in traffic.

Safer roads

European roads are the safest in the world, transport fatalities have more than halved over the past decades, down from 54,000 in 2001 to 26,000 in 2015.

Smart

While automotive digital technology has traditionally focused on optimising the vehicle's internal functions, attention is now turning to developing the car's ability to connect with the outside world and enhance the in-car experience.

BUS

Computing power

A modern car has the computing power of 20 personal computers and features about 100 million lines of programming code.

Connected vehicles

Using on-board sensors and internet connectivity, 'connected vehicles' communicate with each other (V2V), infrastructure (V2I), users, or third-parties in order to provide information and services.

Automated vehicles

Automated vehicles are vehicles in which at least some aspects of safety-critical control functions occur without direct driver input.

Users

More than 70% of drivers say that they are interested in using, or are already using, connected car services.

WHERE ARE WE TODAY?
THE CHALLENGES

Rising transport demand and environmental challenges

Despite the CO2 reductions delivered by automobile manufacturers, total greenhouse gas emissions from transport have grown since the 1990s, largely due to huge increases in transport demand.

**Pollution**

Air quality

A significant proportion of Europe's population live in areas, especially cities, where exceedances of air quality standards occur. Reducing air pollution therefore remains a priority.

Global trade-related international freight

x4.3

2050

Global trade-related international freight is projected to grow by a factor of 4.3 by 2050, with road freight's share up from 6% to 10%, driven by increasing intra-regional trade.

17%
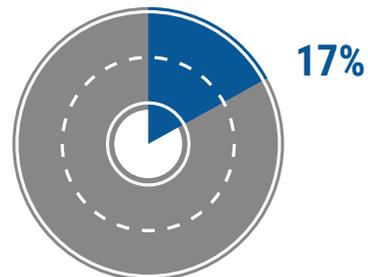
Road transport contributes about 17% of the EU's total emissions of carbon dioxide (CO2), the main greenhouse gas.

Passenger and freight transport

€ GDP € GDP € GDP

All existing forecasts show that demand for passenger and freight transport will continue to grow in line with GDP and trade growth.

Increased urbanisation

Urbanisation in Europe is an ongoing phenomenon,
both in terms of urban land expansion
and increasing population share.

Population density

75% of the EU population lives in urban areas.

75%

Blurring lines

The line between the urban and the rural is blurring, with peri-urban space increasing much faster than traditional core cities.

Periphery

Urban population levels tend to rise on the periphery of cities, exacerbating traffic problems.

Safety concerns

A large majority of European citizens (73%) consider road safety to be a serious problem in cities.

73%

64%

x2.6

Urban journeys

64% of all travel was made within urban environments in 2014.

Urban population

According to the UN, the population in Europe's cities grows by around two million inhabitants annually. London alone increased by 1 million persons between 1995 and 2015.

Mobility demand

Forecasts suggest an increase in demand of 2.6 times the current levels of mobility by 2050.

Congestion costs

Presently, congestion costs society roughly 1% of the total EU GDP.

Digitalisation

Generation Z (those born after 1993) were raised with the smartphone revolution and want to be constantly connected online.

Generation Y (those born between 1980 and 2000) like using smartphone apps for travel.

Connected

This generation wants access to music, social media, and friends via the internet at any place, and at any time.

CAR-SHARING

TRAIN STATION

TAXI

Digital expectations

Generation Z increasingly demand transportation that provides the level of digital utility and capability to which they are accustomed.

Innovation

They are used to constant innovation and quick shifts in technology, business and service models.

Multi-tasking

Nearly 50% of generation Y already plan travel so they can multi-task.

Multi-tasking

9% of them chose to travel by bus, train or taxi just so that they can multi-task.

Changing consumer habits

Changing consumer habits contribute to the growing transport demand and new transport and mobility needs.

Demographic changes

The growing older generation face many challenges in trying to stay mobile and active in society.

Consumer habits

There has been a massive growth in online purchasing by consumers, who expect rapid, regular and direct deliveries.

73%
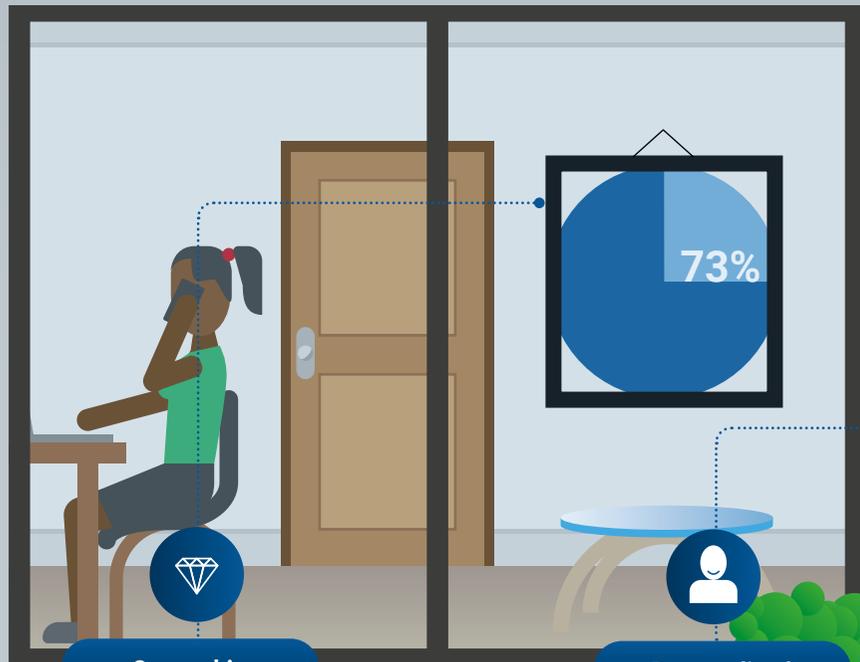
Ownership

The younger generation is becoming less committed to ownership; 73% of all adults worldwide are saying 'I would rather have a few useful possessions than many possessions'.

Personalised

Customers are demanding ever greater choice, and individually-customised products that respond to their precise needs.

Life expectancy

In the 1900s, the average global life expectancy was around 40 years. Thanks to advances in medical science, nutrition and health care, the average global life expectancy is currently closer to 80.

Ageing population

Europe is becoming older – by 2025 more than 20% of Europeans will be 65 or over, with a particularly rapid increase in the over-80s.

20% 65+

20% 65+

WHAT WILL TOMORROW BRING?

Future mobility solutions

It is clear that less mobility is not an option – that is not how our modern lives work. Instead we need better mobility solutions, and European automobile manufacturers are well under way to help creating them. The European automotive sector invests almost 45 billion Euros per year to ensure new levels of **clean, smart and safe mobility**.

Cleaner

Low-emitting and fuel-efficient transport and mobility, with minimum environmental impact.

Safer

Driving with low risk of accidents, and a low-impact of any accidents that do occur.

Smarter

Connected and automated driving.

Clean

Road-transport related emissions will be dramatically reduced thanks to a greater uptake of vehicles with the latest technologies and alternative powertrains, intelligent transport systems (ITS) and improved infrastructure.

Charging infrastructure

As a result of significant investments and government support, reliable and uniform charging infrastructure will be widely available across Europe for the whole spectrum of alternative powertrains – substantially increasing the market uptake of these vehicles.

Fleet renewal

Thanks to a steady renewal of the vehicle fleet we will be able to reap the benefits of the latest low-emission technology, ensuring that vehicles consume less fuel (and emit less CO_2 emissions) and emit less pollutants like NOx and PM.

Alternative fuel vehicles

Environmental challenges, lower battery costs, more widely available charging infrastructure, and increasing consumer acceptance will create stronger momentum for the full spectrum of alternative fuel vehicles (electric, hybrid, fuel cell, natural gas).

Electric vehicles

ACEA forecasts a market share for all electrically-chargeable vehicles (ie electric and hybrid) of up to 8% by 2025.

Truck platooning

Truck platooning – the linking of two or more trucks in convoy via wireless communications – will become a common sight throughout Europe in the future, saving fuel and reducing CO_2 emissions up to 10%.

Smart

Manufacturers will become providers of innovative mobility solutions, rather than 'just' producers of vehicles. The future will bring a transportation landscape in which private car, freight, bus, rail, pedestrian and bicycle traffic will be woven into a connected network, saving time and resources.
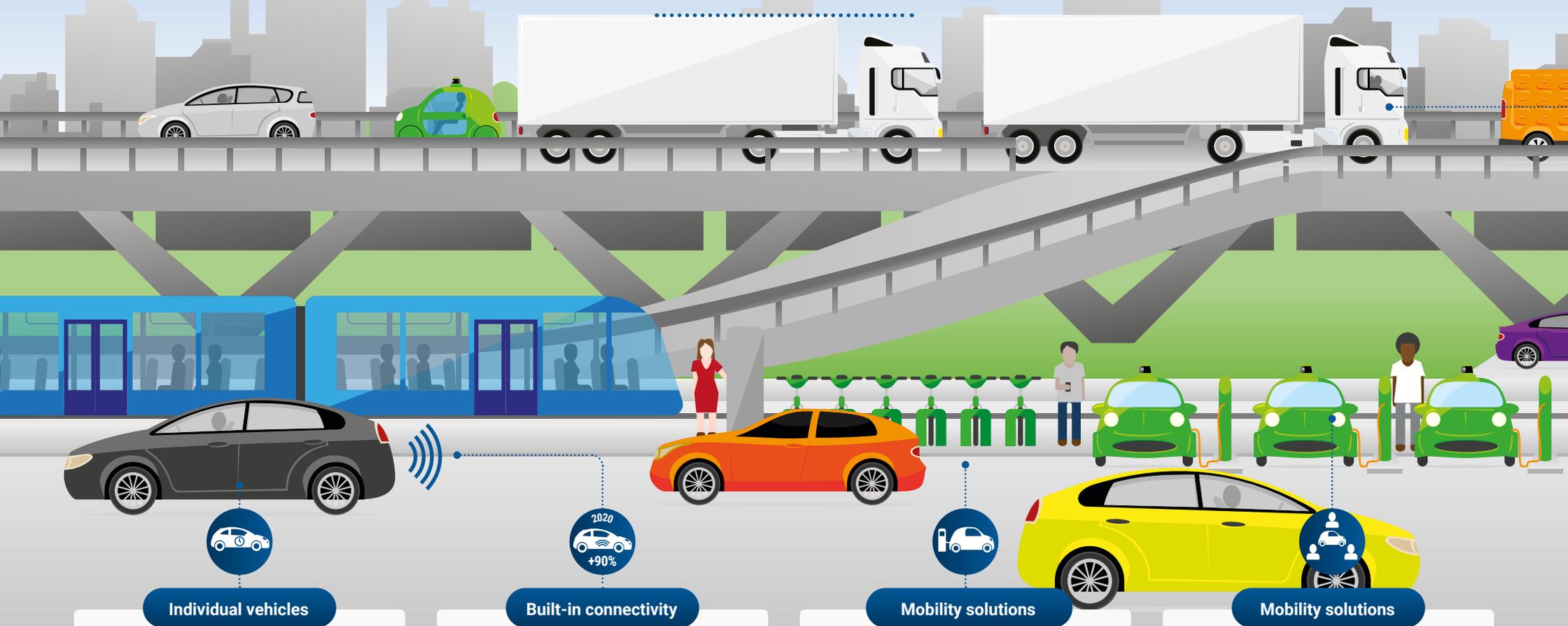
Individual vehicles

Although the sharing economy will continue to grow, individual vehicles will still remain in strong demand, due to their flexibility and the new scope to make valuable and productive use of the time spent in vehicles.

Built-in connectivity

The number of vehicles with built-in connectivity will increase from 10% in 2013 to 90% by 2020.

Mobility solutions

Tailored mobility and transport solutions will lead to new ownership models (car sharing), customised intermodal mobility solutions and new logistics concepts.

Mobility solutions

As a result, the traditional business model of vehicle sales will be complemented by a range of diverse, on-demand mobility solutions, especially in urban environments.

New logistics trends

Freight transport will adapt to new logistics trends and systems, based on a supply chain combining long-haul and last-mile solutions, with logistics platforms on multi-modal corridors, managed by intelligent transport systems.

ADAS

Fully autonomous vehicles are unlikely to be commercially available before 2020. Meanwhile, advanced driver assistance systems (ADAS) will play a crucial role in the medium-term to prepare policy makers, customers, and businesses for the reality of cars taking over control from drivers.

Smart parking

Public infrastructure can reduce traffic by using new technologies to assist vehicles wishing to park by connecting them with available spaces. The need for parking spots in cities could also be reduced by up to 60% thanks to self-driving vehicles.

Mobility for all

Automated driving will assist those with reduced mobility – for example the elderly and those with visual or other health impairments – to continue or start to drive, either with support within automated systems or within a fully autonomous mode.
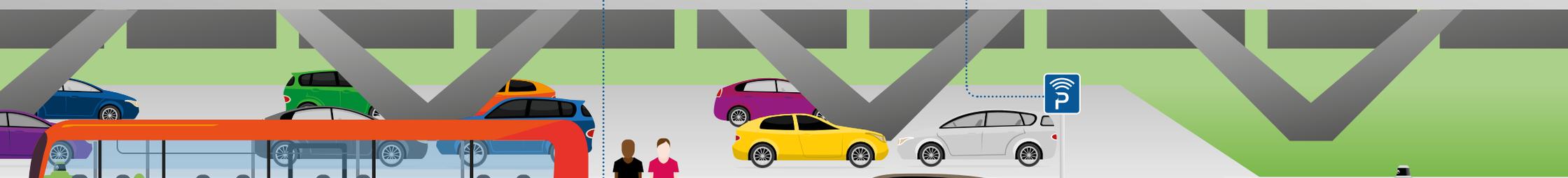
Collective transport

The next generation of high-service collective transport will be born, including bus corridor concepts based on inter-modality, with full integration between cars, bus, rail and non-motorised mobility.

Enhanced experience

Connected cars will also make the car an extension of your home or office, providing the potential to enhance driving by making it more convenient, time-saving, and less stressful.

Productivity gains

Increased traffic efficiency means less congestion – with people and goods arriving at their destinations faster, bringing important productivity gains.

Tailored solutions

Customers' new habit of using tailored solutions will lead to new segments of specialised vehicles, designed for highly specific needs.

Safe

In the years ahead, further technological breakthrough will come through interaction between vehicles and the infrastructure, as well as a higher uptake of vehicles equipped with active safety systems.

Smarter infrastructure

Smarter infrastructure will enable the exchange of safety information, such hazards on the road ahead, between drivers, vehicles and road infrastructure.

Data protection

Tomorrow's connected car will contain highly complex, technically-sensitive systems that will be indispensable for safety-critical applications, making data protection paramount. That's why automakers will continue to be committed to protecting the personal data and privacy of their customers.
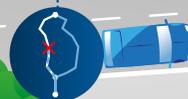
Safer infrastructure

Improvements in the design, construction and maintenance of road infrastructure will significantly improve safety. Unclear traffic signs and poor lane borders are a thing of the past.
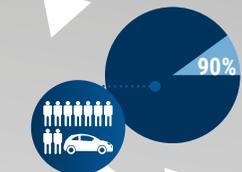
Human error

We can further increase road safety through autonomous driving – nine out of ten accidents are due to human error.

Connectivity

Intelligent transport systems (ITS) and connectivity will improve road safety, as vehicles, their operators and their occupants will be made aware of traffic-light phases and roadworks, hazardous situations (such as accidents, obstacles or icy roads) - and able to respond accordingly.
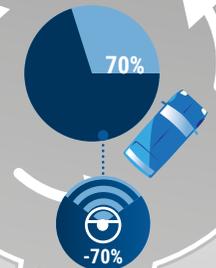
Self-driving vehicles

It is estimated that a 70% reduction in accidents would be feasible if self-driving vehicles represent a considerable share of the car fleet.

ACCIDENT AHEAD

ACCIDENT AHEAD

90%

70%

-70%

HOW DO WE GET THERE?

10 policy recommendations for cleaner, safer and smarter mobility

1 Foster innovation

Bearing in mind that innovation is market driven, the industry needs the flexibility to drive it forward, with policies and regulations that encourage it.

The automobile industry calls for support for dedicated automotive initiatives and research that further advances vehicle connectivity, environmental performance and safety.

2 Ensure technology-neutrality

Ensuring technological neutrality is essential to supporting innovation. Knowing that technological developments are by definition not completely predictable, European automobile manufacturers believe at this point that no technology options should be discarded, and that no 'winners' be prematurely selected.

Policy related to new systems and alternative powertrains should therefore be results-oriented to ensure the uptake of the cleanest and safest vehicles.

3 Take a 'consumer-focused' perspective

Adopt mobility and transport policies that respond to changing consumer habits and needs.

4 Adopt a comprehensive approach to reducing emissions

This means not only focusing on reducing emissions from new vehicles, but also looking at all factors influencing emissions during the use of vehicles. Such a comprehensive approach can reduce emissions more effectively by drawing on a full spectrum of solutions, whether this relates to intelligent transport systems, improving infrastructure or altering driver behaviour (eco-driving).

5 Adopt an integrated approach to road safety

This means combining further improvements in vehicle technology with complementary intelligent transport systems, better road design and maintenance, improved driver training, and enforcement of traffic regulations.

6 Ensure a better coordination of climate change and air quality policies

While significant progress has been made in reducing both CO_2 and NO_x emissions from vehicles, there is still a technical challenge for car manufacturers, as measures to reduce one often result in the increase of the other.

Over past years, policy initiated by the EU institutions has focussed on reducing greenhouse gas emissions, resulting in the most stringent targets for CO_2 emissions from cars and vans in the world. Looking forward, we need a coherent European policy framework in which ambitious climate change objectives are better reconciled with tougher air quality standards.

The implementation of targets and testing methods should be streamlined.
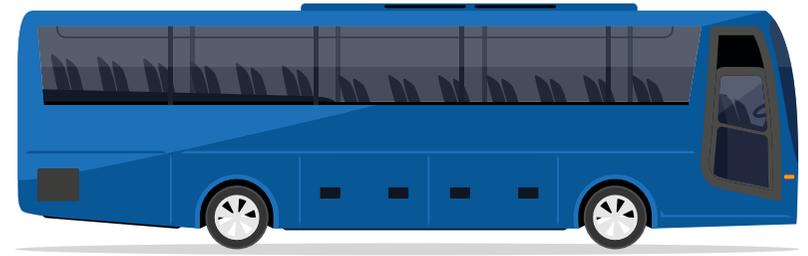
7
Integrate all modes of transport in a complementary way

Given the increasing diversity of mobility needs, the principle of 'co-modality' should be at the heart of the future European transport policy. Different modes of transport each have different characteristics and should be seen as complementary and interconnected.

8
Adopt urban policies that improve traffic fluidity

Efficient mobility and transport is a fundamental requirement of cities. Policies should therefore aim at improving traffic fluidity, rather that restricting it.

9
Facilitate connected and automated driving

Europe needs to strengthen its communications networks. Concretely, we need to improve network coverage and reliability, and to provide the right infrastructure to process data for millions of cars.

We need to adapt traffic rules. For instance, this means updating the Vienna convention, which still requires that a driver must be in control of the vehicle at all times.

More and more national governments are offering industry the opportunity to test their latest vehicles and technologies, thereby supporting efforts to increase public awareness, understanding and acceptance. However, it is vital this is done within a pan-European framework to establish the same rules in all member states.

We need a system to enable secure access to data, which does not endanger the safety of vehicles and their users.

10
Encourage a move to the cleanest and safest vehicles

The average age of road vehicles in Europe has been increasing since 2000. For cars it is currently close to 10 years, for vans and heavy-duty vehicles it is over eight years, and for buses it is over nine years.

Fleet renewal offers the most effective way to decrease road transport-related emissions and improve safety. As older vehicles are replaced with newer models, emissions from road transport will fall and safety will improve, especially as the latest connectivity and automation technologies enter the market.

The automotive industry calls on policy makers to help accelerate fleet renewal and introduction of the cleanest, safest and smartest vehicles. This is particularly important as new vehicles (less than one-year old) only represent about 5% of the total current fleet.