



11

Mobility and Transport

839-1600

# Mobility and transports

Pocket Statistics 2016



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Confederazione Svizzera  
Confederaziun svizra

Swiss Confederation

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# 1 Parameters for transport

Permanent resident population	8.24 m	End 2014
GDP	CHF 642 bn	2014
Change in transport performance – passenger transport	+25%	2000–2014
Change in passenger transport prices	+8%	2000–2014
Change in goods transport prices	+10%	April 2001–October 2015

Sources: FSO – Swiss CPI, STATPOP, PPI: Goods transport

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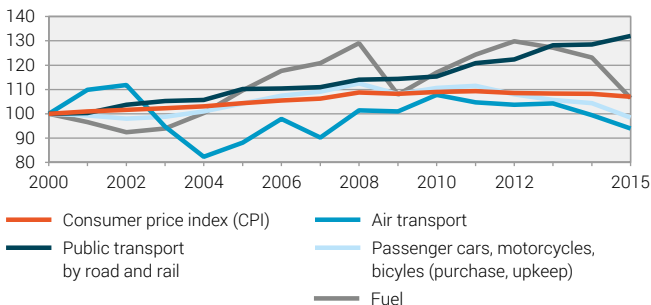
Progress made in the area of mobility and transport must be considered in the context of various framework conditions. In addition to geographic conditions and the state of technology, Switzerland's population and economic growth needs to be taken into account first and foremost. Prices also have a key role in terms of expenditure relating to different transport services.

At the end of 2014, more than 8 million people lived in Switzerland – 14% more than in 2000. The real gross domestic product (GDP) rose by 28% over the same period. National and international economic interdependence also increased. These factors led to growth in the volume of transport.



## Price movements in passenger transport

Index 2000=100

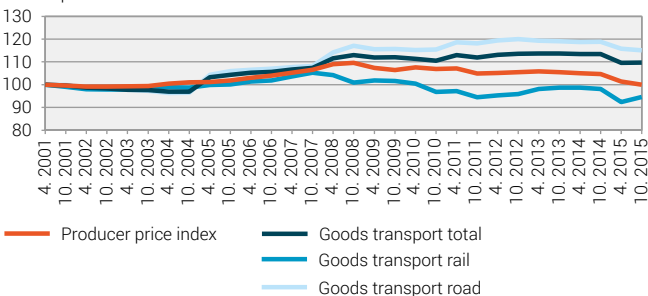


Source: FSO – Swiss CPI

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## Price movements in goods transport

Index April 2001=100



Sources: FSO – PPI, PPI: Goods transport

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## 2 Public funding for transport

Public expenditure on transport	CHF 16.7 bn	2013
Transport's share of total public expenditure	12%	2013
Confederation's share of public expenditure on transport	53%	2013

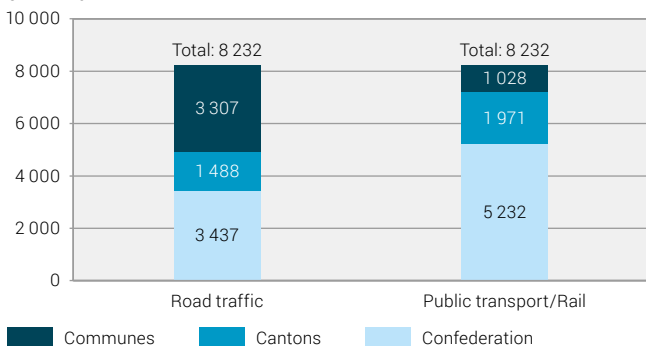
Source: FFA – Switzerland's financial statistics

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In 2013, the Confederation, cantons and communes spent CHF 16.7 billion on road and rail transport. Operations and investments in road infrastructure and contributions to road and rail public transport were financed. The Confederation assumed 53% of the total expenditure and the cantons and communes 21% and 26% respectively.

## Public expenditure on transport in 2013

CHF million



Other expenses (water transport, air transport, transport planning): CHF 272 million

Source: FFA – Switzerland's financial statistics

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### 3 Transport infrastructure

National highways	1823 km	2014
of which motorways	1429 km	2014
<hr/>		
Length of railway network	5124 km	2010

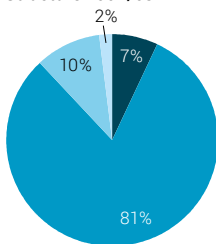
Sources: FSO – Public transport statistics;  
FEDRO – Length of Swiss motorway network

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Swiss transport infrastructure is very developed compared with that of other countries. It takes up just over 2% of the national territory and around one third of housing and infrastructure areas. It includes 5100 km of railway lines, 1800 km of major roads and 18,000 km of cantonal roads.

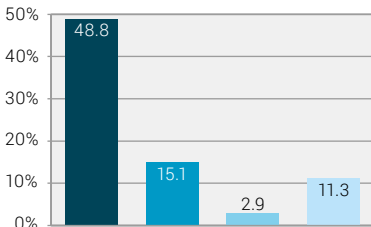
## Area occupied by transport infrastructure

Structure 2004/09



Total: 952 km<sup>2</sup>

Increase 1979/85–2004/09

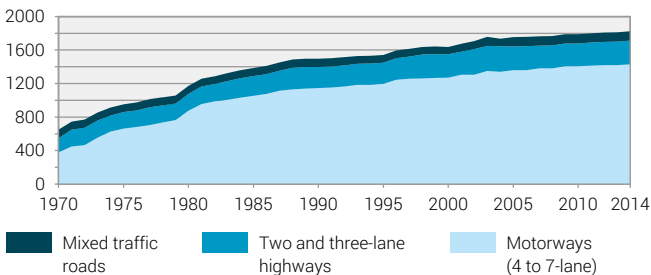


Source: FSO – Land use statistics

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## Length of national highways

Kilometres



Source: FEDRO – Length of Swiss motorway network

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## 4 Transport enterprises

Enterprises in the transport sector	12 817	2013
Employees (FTE) in transport	156 529	2013
Proportion of enterprises in the transport sector from all enterprises in Switzerland	2.2%	2013
Proportion of employees (FTE) in transport from all employees in Switzerland	4.0%	2013

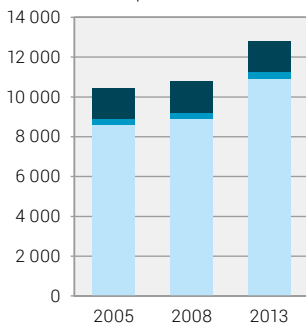
Source: FSO – STATENT

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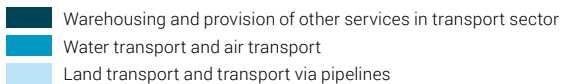
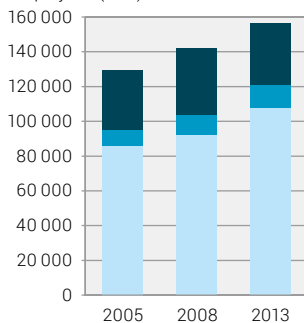
In 2013, there were 577,800 enterprises in Switzerland in total. 12,800 of these were active in the transport sector. Since 2005, there has been an increase of around 2300 transport companies (+23%). The total number of employees (full-time equivalents – FTE) rose by 20% to 156,500 over the same period. (All figures pursuant to the NOGA classification BFS-50)

## Transport enterprises and employees

Number of enterprises



Employees (FTE)



Source: FSO – STATENT

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## 5 Means of transport

Road motor vehicles (excluding mopeds)	5.9 m	2015
of which passenger cars	4.5 m	2015
of which motorcycles	0.7 m	2015
of goods vehicles	0.4 m	2015
Tractive railway vehicles	2 997	2010
Cableway vehicles	40 208	2010
Aircraft registered in Switzerland	3 556	2014

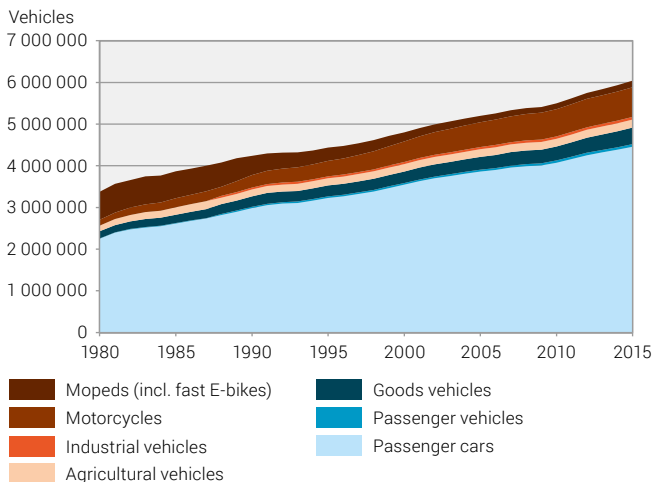
Sources: FSO, FEDRO – MFZ; FSO – Public transport statistics;  
FSO, FOCA – AVIA\_ZL

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The number of road vehicles (excluding mopeds) has more than doubled since 1980. Around three quarters of them are passenger cars. Statistically speaking, therefore, one person in two owns a car; whereby the vehicle density varies depending on the canton. Moreover, for some time a trend towards four-wheel drive vehicles, diesel-powered vehicles and motorcycles has been observed.



## Pool of road motor vehicles

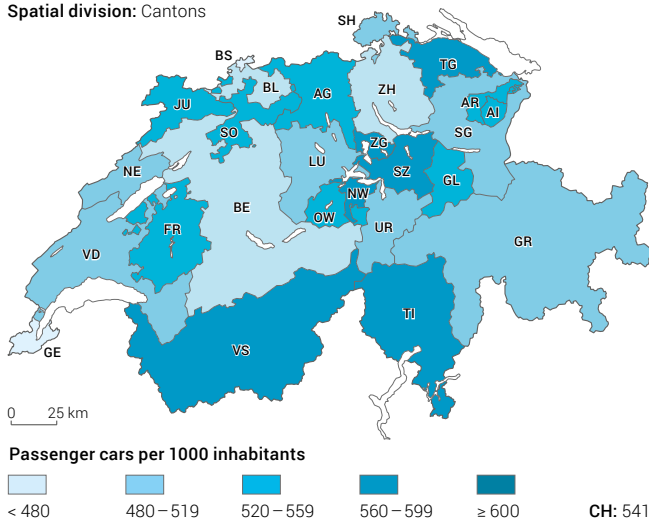


Sources: FSO, FEDRO – MFZ;  
FSO – Survey about mopeds, conducted by the cantons

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## Level of motorisation in 2015

Spatial division: Cantons

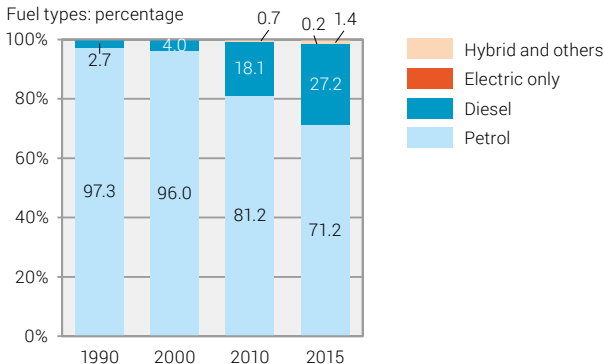


Sources: FSO – STATPOP; FSO, FEDRO – MFZ

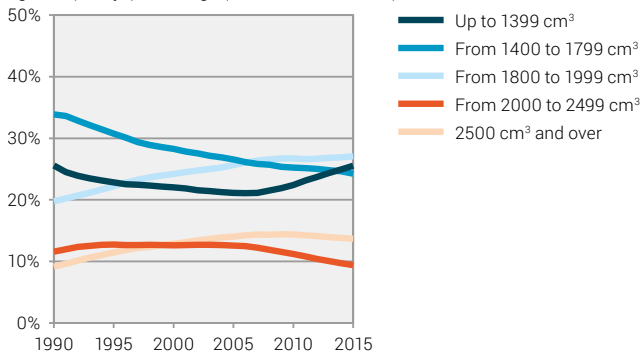
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## Passenger cars by fuel and engine capacity

Fuel types: percentage



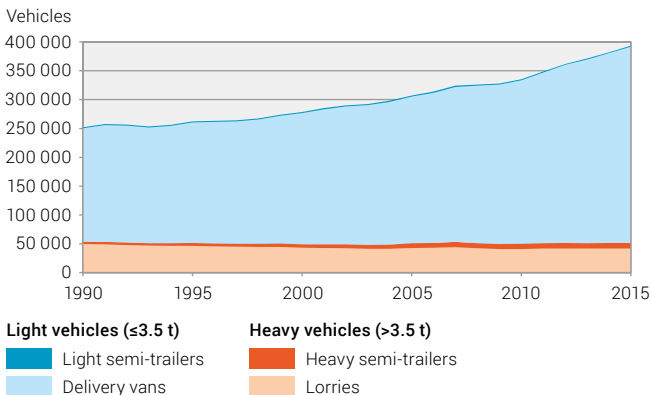
Engine capacity: percentage (excl. electric vehicles)



Source: FSO, FEDRO – MFZ

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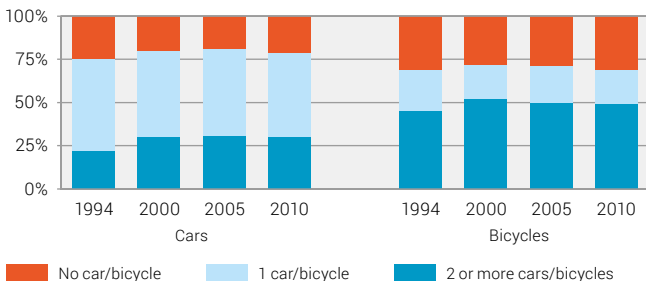
## Goods vehicle stock



Source: FSO, FEDRO – MFZ

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## Number of cars and bicycles per household



Source: FSO, ARE – MTMC

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## 6 Use of means of transport

Kilometre performance	m veh.-km	
of private motor vehicle traffic	56 433	2014
of road transport of goods	6 234	2014
Domestic transport as a percentage of heavy road transport of goods	75%	2014
Traffic jams on highways	22 828 hours	2015

Sources: FSO – Passenger transport performance, Goods transport statistics, © FSO 2016  
Public transport statistics; FEDRO – Annual report on traffic and national roads

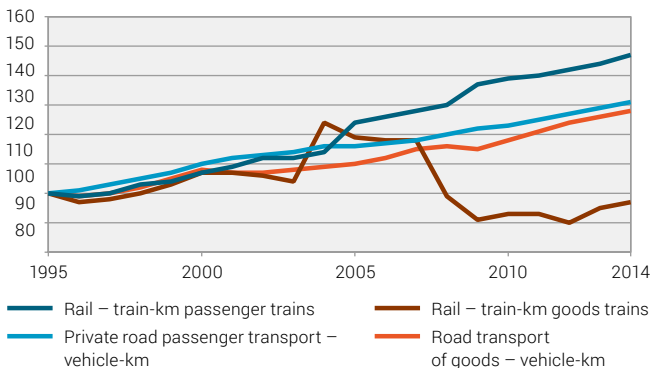
The choice of transport means and vehicle occupancy influences road and rail traffic. In 2010, the occupancy rate for passenger cars was 1.6 persons per car.

In passenger transport, transport performance by rail has increased by 47% since 1995 and by road (private motor vehicles) by 31%. The kilometre performance of road transport of goods as a whole increased by 28% over the same period.

In air transport, takeoffs and landings at the three national airports of Zurich, Geneva and Basel-Mulhouse more than doubled between 1970 and 2014.

## Kilometre performance

Index 1995=100



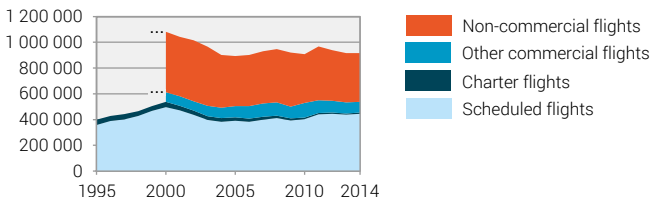
Sources: FSO – Goods transport statistics, Passenger transport performance, Public transport statistics

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## Takeoffs and landings in civil aviation

(national and regional airports)

Movements

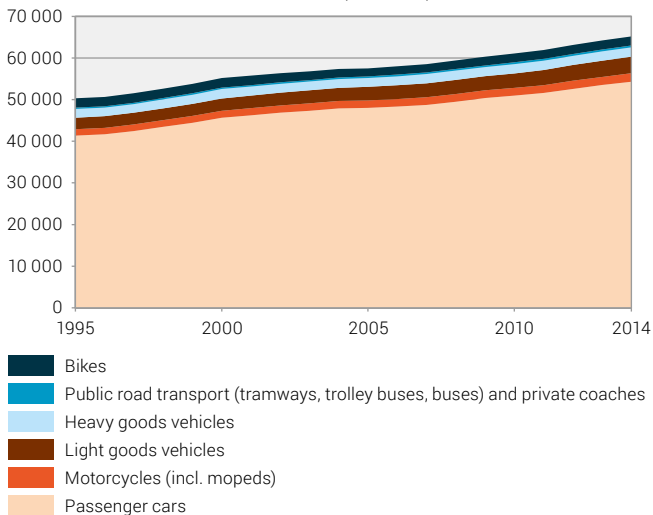


Source: FSO, FOCA – AVIA\_ZL

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## Kilometre performance in road transport

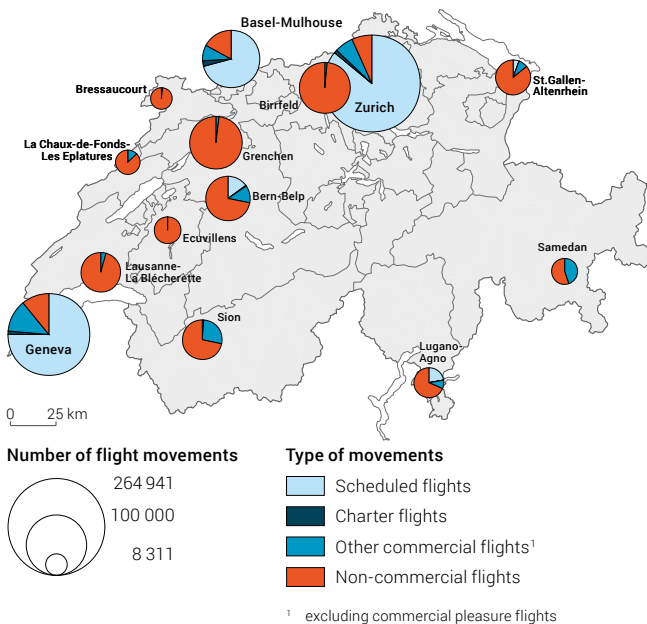
Vehicle-kilometres or timetable kilometres (in millions)



Sources: FSO – Goods transport statistics, Passenger transport performance, Public transport statistics

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## Take-offs and landings in civil aviation in 2014



Source: FSO, FOCA – AVIA\_ZL

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## 7 Passenger transport performance

Transport performance by rail and road (incl. non-motorised traffic)	127.6 bn pkm	2014
Share of private motorised road transport	74%	2014
Share of public transport	19%	2014
Air passengers (local and transfer) in scheduled and charter flights	49.4 m	2015

Sources: FSO – Passenger transport performance; FSO, FOCA – AVIA\_LC

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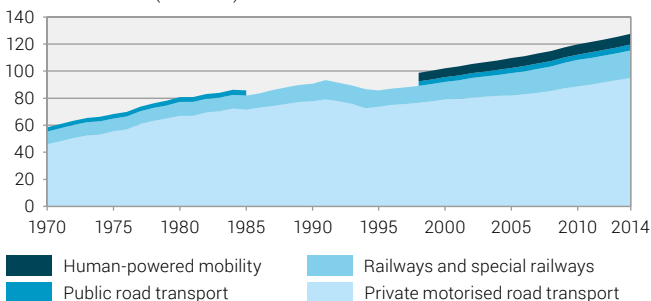
The sum of all the distances covered on road and rail by residents and foreigners in Switzerland was almost 128 billion person-kilometres in 2014. This represents an increase of 25% compared to 2000.

74.4% of transport performance in 2014 was accounted for by private motorised transport, 19.4% by public transport and 6.2% by non-motorised transport.

Between 2000 and 2015, the number of passengers in scheduled and charter flights increased by 43%.

## Passenger transport performance

Person-kilometres (in billions)

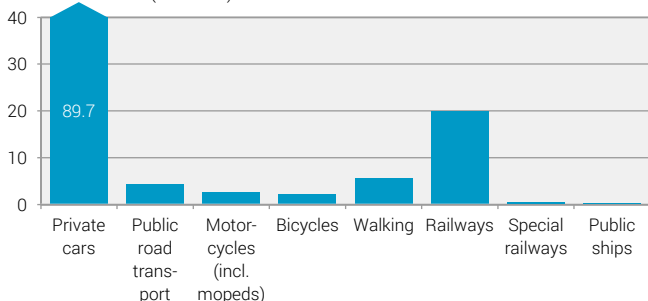


Source: FSO – Passenger transport performance

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## Transport performance by means of transport in 2014

Person-kilometres (in billions)

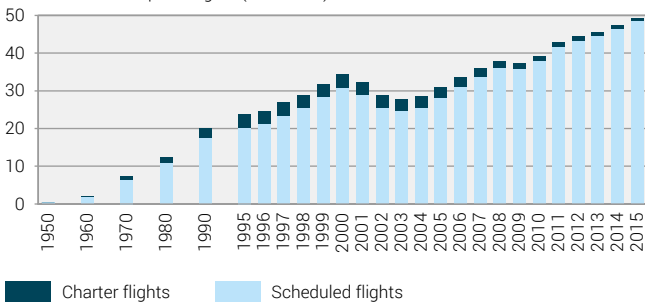


Source: FSO – Passenger transport performance

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## Air passengers – scheduled and charter flights

Local and transfer passengers (in millions)



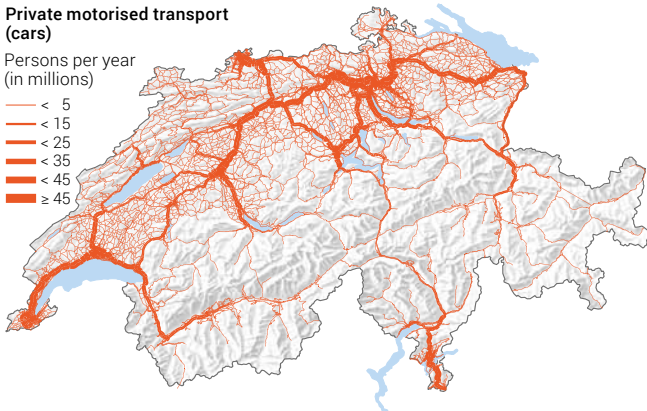
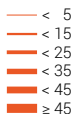
Source: FSO, FOCA – AVIA\_LC

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## Passenger traffic flows in 2015

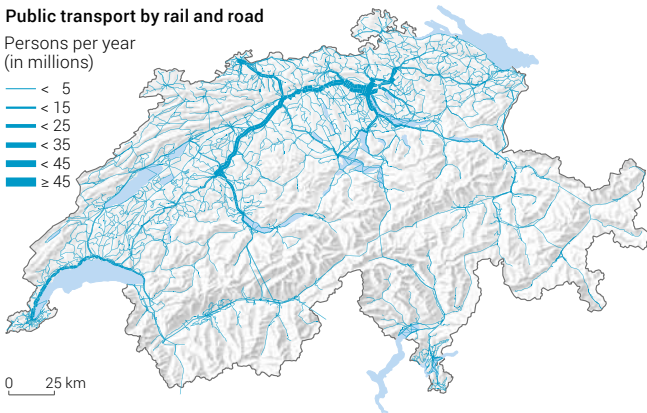
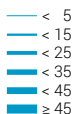
### Private motorised transport (cars)

Persons per year  
(in millions)



### Public transport by rail and road

Persons per year  
(in millions)



Sources: FSO – GEOSTAT; ARE – traffic modeling (DETEC), INFOPLAN

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## 8 Travel behaviour of the population

Average daily distance per person (in CH, including waiting and transfer times)	36.7 km	2010
Average daily travel time per person (in CH, including waiting and transfer times)	91.7 Min.	2010
Annual mobility per person (in CH and abroad)	20 500 km	2010

Source: FSO, ARE – MTMC

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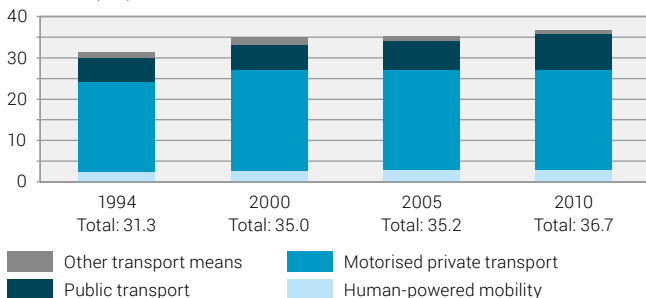
On average, each Swiss resident covered a daily distance of just under 37 km within Switzerland in 2010, 5% more than in 2000. Two thirds are largely covered by private motorised transport. Leisure activities account for the main trip purpose followed by commutes to work.

The average total distance travelled in Switzerland and abroad by a person from the permanent resident population was 20,500 km in 2010. This is equivalent to half the distance around the world.

The Swiss resident population undertook a total of 21.2 million overnight trips in 2014. Besides Switzerland, the most popular destinations were Germany, Italy and France.

## Average daily distance by means of transport

Kilometres per person in CH

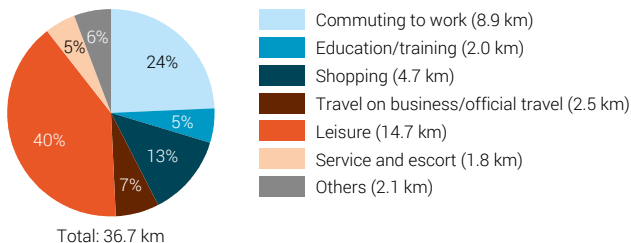


Source: FSO, ARE – MTMC

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## Average daily distance by means of transport in 2010

(daily distance per capita in CH)

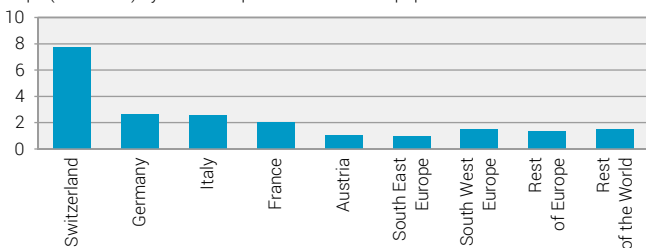


Source: FSO, ARE – MTMC

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## Trips with overnight stays by destination in 2014

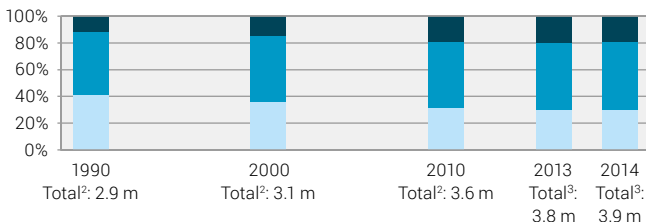
Trips (in millions) by the Swiss permanent resident population



Source: FSO – Travel behaviour

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## Commuters per commute<sup>1</sup>



Commuters between different cantons  
 Commuters between different communes but within canton of residence

Commuters within commune of residence

<sup>1</sup> By status of commune in 2014

<sup>2</sup> Total without missing values, i.e. excluding respondents with incomplete information

<sup>3</sup> Total includes missing values attributed to the commuter group using estimation procedures

Sources: FSO – Commuter mobility, structural survey

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## 9 Goods transport performance

Goods transport performance	28.3 bn tkm	2014
Rail transport share	38%	2014
Transalpine trips by heavy goods vehicles (through Switzerland)	1,01 m	2015
Rail share of goods transport in transalpine goods transport (through Switzerland)	69%	2015

Sources: FSO – Goods transport statistics, Public transport statistics;  
FOT, FEDRO – Transalpine goods transport

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In 2014, the goods transport performance amounted to around 28.3 billion tonne-kilometres. The 2008 record was thus just beaten. If the entire period from 1980 to 2014 is considered, transport performance increased by 94%. The rail share of goods transport fell from 53% to 38%.

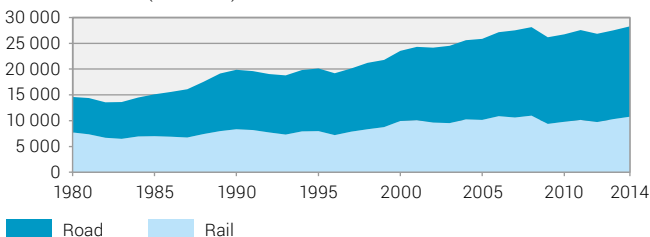
In 2014, transport performance of domestic heavy vehicles amounted to 11.3 billion tonne-kilometres and transport performance of foreign heavy vehicles in Switzerland to 5.3 billion tonne-kilometres.

The number of transalpine trips through Switzerland by heavy goods vehicles increased fivefold between the opening of the Gotthard tunnel in 1981 and the year 2000. Since 2001, the values have decreased slightly. In 2015, a total of 39.0 million net tonnes of goods were transported by road and rail over Swiss alpine passes; 69% by rail. Its share in transalpine transport has decreased since 1981 but is still considerably greater than in Austria and France.



## Goods transport performance

Tonne-kilometres (in millions)

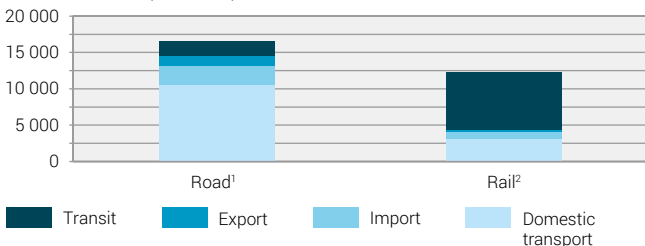


Sources: FSO – Goods transport statistics, Public transport statistics

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## Domestic and international transport performance by road and rail in 2014

Tonne-kilometres (in millions)



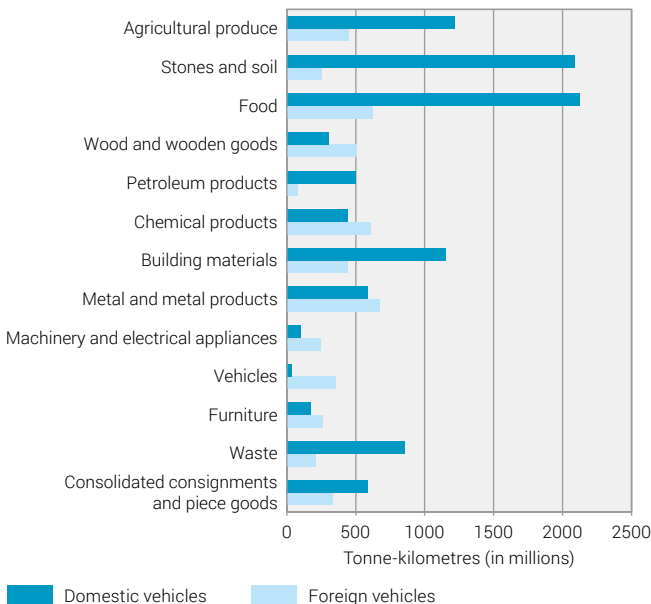
<sup>1</sup> Heavy goods vehicles only

<sup>2</sup> Including the proper weight of goods vehicles (incl. trailers), containers and swap bodies in multimodal transport

Sources: FSO – Goods transport statistics, Public transport statistics

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## Transport performance of domestic and foreign vehicles by selected groups of goods in 2014

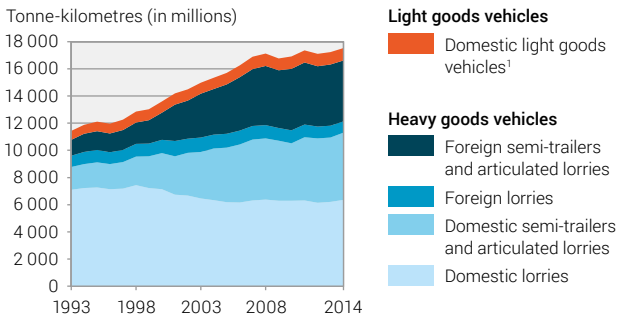


Database: domestic and foreign heavy goods vehicles; trips in Switzerland

Source: FSO – Goods transport statistics

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## Road transport performance by vehicle type and registration

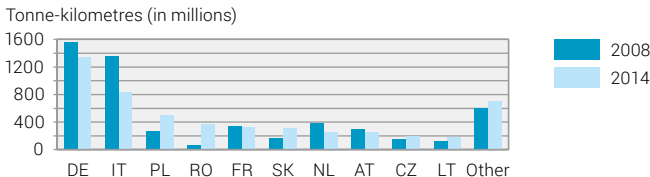


<sup>1</sup> Transport performance of foreign light goods vehicles not surveyed because this is minimal.

Source: FSO – Goods transport statistics

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## Transport performance of foreign heavy goods vehicles in Switzerland by country of registration



Database: foreign heavy goods vehicles

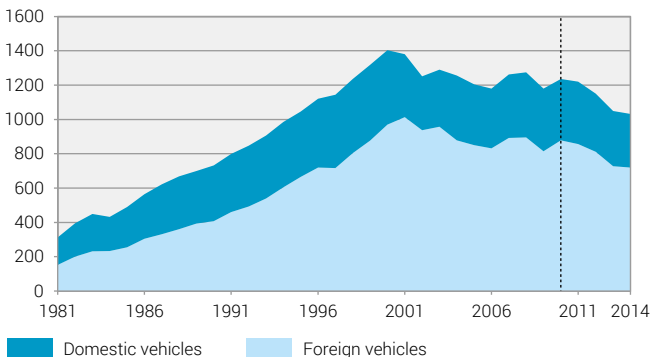
Source: FSO – Goods transport statistics

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## Transalpine goods transport by road

(number of trips of heavy goods vehicles in Switzerland)

Thousand vehicles



Change of method: As of 2010, control station data from the performance-related heavy vehicle fee are used (until 2009: data were taken from the Swiss automatic road traffic counts)

Source: FOT, FEDRO – Transalpine goods transport

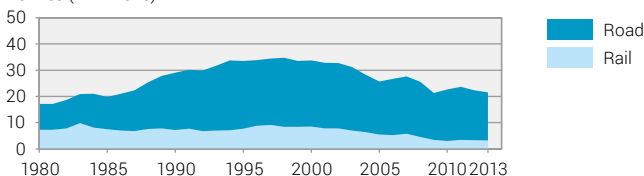
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## Transalpine goods traffic volumes

(Mt. Cenis/Fréjus-Brenner alpine arc)

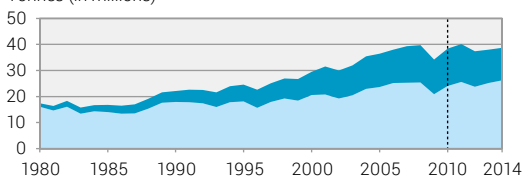
### France

Tonnes (in millions)



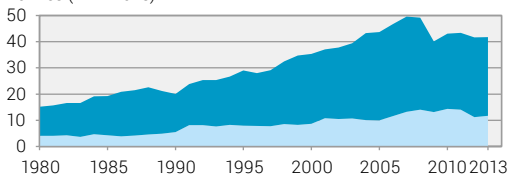
### Switzerland<sup>1</sup>

Tonnes (in millions)



### Austria

Tonnes (in millions)

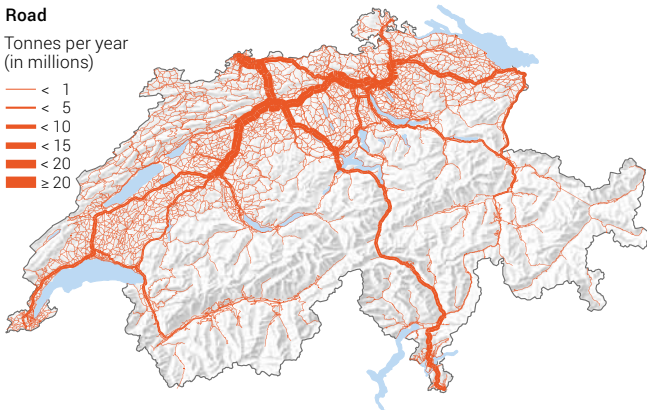
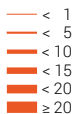


<sup>1</sup> Change of method for roads transport: As of 2010, control station data from the performance-related heavy vehicle fee are used (until 2009: data were taken from the Swiss automatic road traffic counts)

## Goods traffic flows in 2015

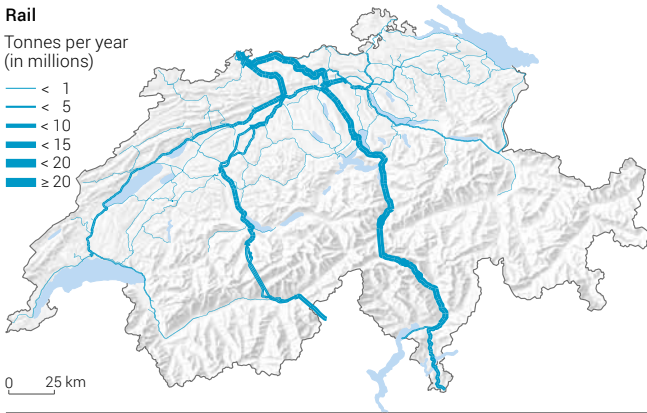
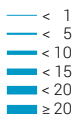
### Road

Tonnes per year  
(in millions)



### Rail

Tonnes per year  
(in millions)



0 25 km

Sources: FSO – GEOSTAT; ARE – traffic modeling (DETEC), INFOPLAN

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## 10 Accidents

### Persons killed

in road traffic	253	2015
in rail traffic (excluding suicides)	21	2015
in air traffic in Switzerland	8	2015

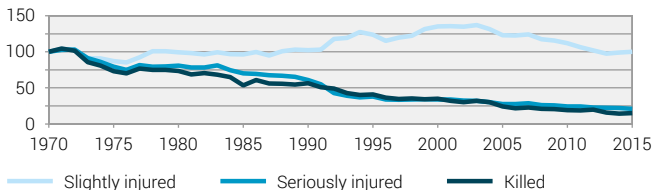
Sources: FSO – Public transport statistics; FSO, FEDRO – Road accidents;  
STSB – Statistics concerning accidents involving aircraft

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253 people in total were killed on Swiss roads in 2015 – 83% less than in 1970. This downward trend is due to technical, legal and educational reasons. The number of persons seriously injured in road traffic has fallen since 1970, reaching 3830 in 2015. The number of those slightly injured, which has also fallen (but only from 2003 onwards), reached 17,708 in 2015.

### Victims of road accidents

Index 1970=100



Note: definition of seriously injured persons modified in 2015. Subsequently, the number of seriously injured persons has fallen and that of slightly injured persons has increased compared with previous years.

Source: FSO, FEDRO – Road accidents

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## 11 Energy consumption and effects on environment

Transport share of energy consumption (final consumption)	38%	2014
Transport share of CO <sub>2</sub> emissions	40%	2014
Growth rate of transport CO <sub>2</sub> emissions	11%	2000–2014

Sources: SFOE – Overall energy statistics; FOEN – Greenhouse gas inventory

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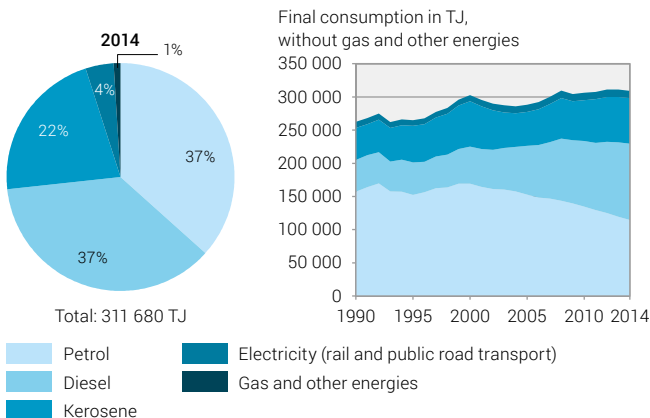
The benefit of mobility comes at the cost of undesirable effects, including the use of scarce energy resources, noise, air pollutants and greenhouse gases. Transport accounts for 38% of domestic energy sales. It is therefore the largest energy consumer group, ahead of the households and industry.

A large proportion of air pollution and the greenhouse gas carbon dioxide (CO<sub>2</sub>) comes from the road and air transport. Road transport is also the main source of nitrogen oxide (NO<sub>x</sub>) and also releases large amounts of health-damaging particulate matter (PM10).

Thanks to technological advances such as diesel-particulate filters and catalytic converters, air pollutant emissions caused by transport have been markedly reduced in recent years. For example, since 1990 there has been a 50% decrease in fine particulate matter emissions (PM10) exhaust emissions from motorised road transport. However, the limit values set for nitrogen dioxide (NO<sub>2</sub>) and fine particulate matter are still being greatly exceeded.



## Energy consumption from transport

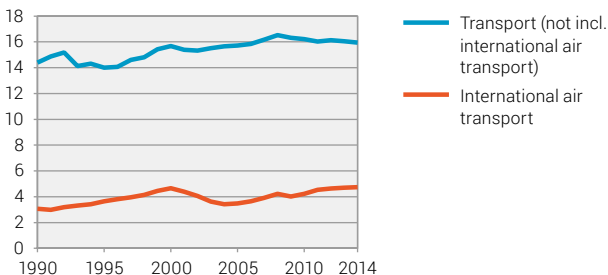


Source: SFOE – Overall energy statistics

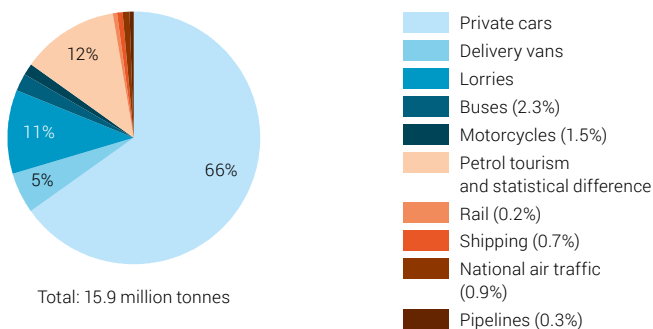
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## CO<sub>2</sub> emissions from transport

Tonnes of CO<sub>2</sub> (in millions)



2014



Source: FOEN – Greenhouse gas inventory

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## 12 Costs

Total transport costs	CHF 85.2 bn	2012
Passenger transport share	75%	2012
Goods transport share	25%	2012

Source: FSO – CFT

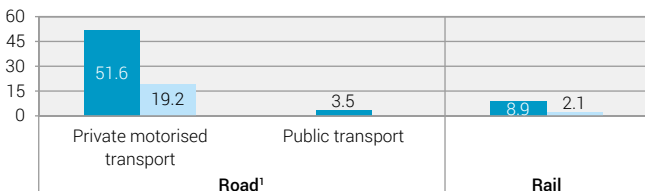
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The total costs of road and rail traffic amounted to CHF 85.2 billion in 2012. In total, three quarters of the transport costs could be attributed to passenger transport and a quarter to goods transport. With CHF 74.3 billion, motorised road transport generated costs approx. seven times greater than those generated by rail transport (10.9 billion). However, motorised road transport handles by far the greatest volume of transport.

The total costs for transport were broken down as follows: 66% for means of transport procurement and operation costs, 16% in infrastructure costs, 8% in accident costs, and 9% in environment and health costs. In motorised road transport, the share of means of transport costs is particularly high with 69%.

## Costs of passenger and goods transport by transport mode in 2012

CHF billion



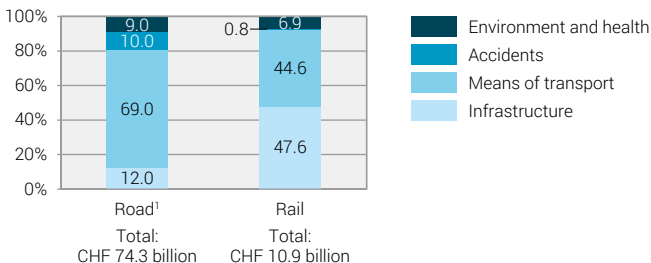
■ Passenger transport    ■ Goods transport

<sup>1</sup> Without human-powered mobility

Source: FSO – CFT

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## Total cost of motorised road and rail transport by cost category in 2012



<sup>1</sup> Without human-powered mobility

Source: FSO – CFT

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## Glossary

### **Daily distance**

Average distance travelled per person per day in Switzerland.

### **Goods transport performance**

Variable to describe performance in goods transport, which takes account both of weight of goods and the distance they are transported. The transport distance is expressed in tonne-kilometres.

### **International economic interdependence**

Average value of imports and exports of goods and/or services as a percentage of GDP.

### **Kilometre performance**

Distance covered by vehicles within a specific period of time. Kilometre performance is specified in vehicle-kilometres (veh.-km), train or timetable kilometres.

### **Local passengers**

Airport's local passengers start or end their flight at the relevant airport.

### **Means of transport group**

Inclusion of different means of transport in the categories of public, private and non-motorised traffic.

### **Modal split**

Distribution of transport service among various transport modes (e.g. road, rail).



## **Non-motorised traffic**

By foot or bicycle.

## **Person-kilometres, pkm**

Unit used to measure the transport performance where one passenger-kilometre is a kilometre travelled by one person.

## **Tonne-kilometres, tkm**

Unit used to measure the transport performance which refers to the transport of one tonne over one kilometre. This is calculated including the weight of the packaging directly surrounding the goods. Unless otherwise specified, the weight of the vehicle and transport containers is not considered.

## **Total costs for transport**

Total costs borne by the consumer (private costs) and by third parties (external costs). Thus including immaterial costs such as certain accident damage and damage to the environment and health.

## **Transport mode**

Infrastructure or mediums by which means of transport move (road, rail, water, air). Transport modes are also used to group the means of transport.

## **Transport performance**

Total distance covered by persons in one year, measured in kilometres per person.



## Transfer passengers

Airport transfer passengers are in transit and continue their journey with another flight. These passengers are counted twice, once on arrival and again on departure.

## Websites

Transport statistics (summaries)	<a href="http://www.transport-stat.admin.ch">www.transport-stat.admin.ch</a>
Transport policy (summaries)	<a href="http://www.are.admin.ch">www.are.admin.ch</a>
Roads	<a href="http://www.astra.admin.ch">www.astra.admin.ch</a> <a href="http://www.strasseschweiz.ch">www.strasseschweiz.ch</a>
Public transport	<a href="http://www.fot.admin.ch">www.fot.admin.ch</a> <a href="http://www.litra.ch">www.litra.ch</a>
Aviation	<a href="http://www.foca.admin.ch">www.foca.admin.ch</a>
Finances	<a href="http://www.efv.admin.ch">www.efv.admin.ch</a>
Accidents	<a href="http://www.unfalldaten.ch">www.unfalldaten.ch</a>
Energy	<a href="http://www.sfoe.admin.ch">www.sfoe.admin.ch</a>
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