



Allianz Risk Pulse

Focus: E-bikes and bike sharing

The city of the future belongs to cyclists

No more gridlocks, air pollution and parking stress – smart bike rental programs and electric motors get the bike trend rolling

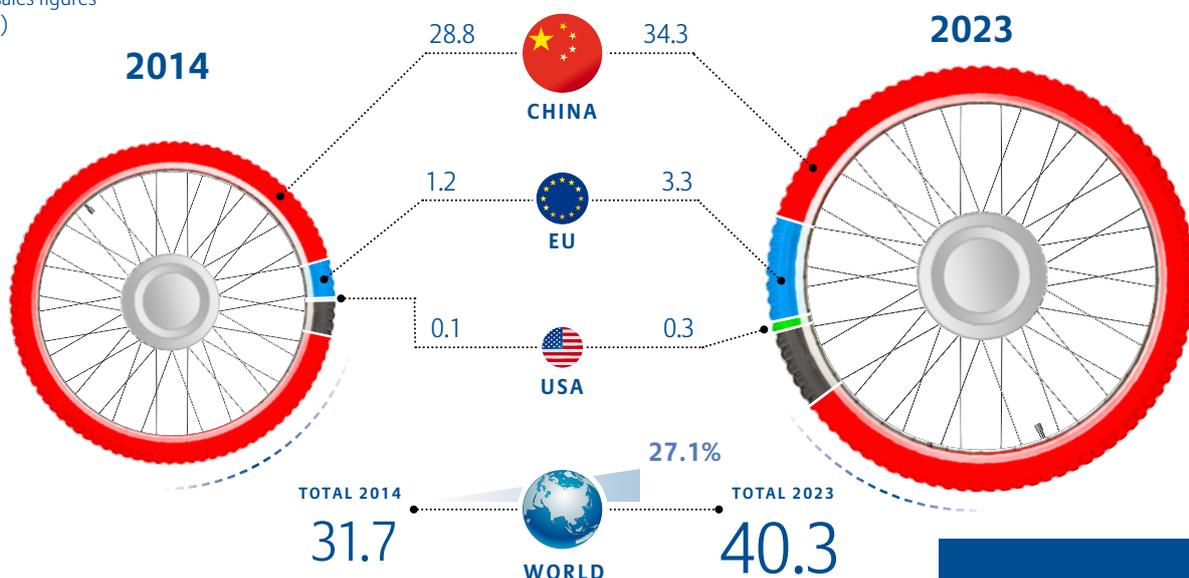
- More and more e-bikes on the road: **globally +27%** until 2023. In Europe, sales are expected to triple
- Over 700 cities worldwide already offer **bike sharing programs**
- **Asia leads the cycle race** in terms of bike and e-bike ownership
- **8 tips** for cycle safety

To get from A to B more and more people around the world are using their bike, particularly for short trips. But they're also increasingly cycling to work, even when it's a longer journey, as a result of the e-bike boom.

The sales figures speak for themselves: in the Netherlands, every fifth new bicycle is an e-bike. In China, **32 million e-bikes were sold in one year**; Europe purchased 1.8 million, Japan 440,000 and the U.S. 185,000. Within Europe, Germany is currently the largest market for e-bikes, but Switzerland too saw a powerful upswing with a sales increase of 16.7%.

Market forecasts for pedelecs (<25 km/h) 2014–2023

pedelecs sales figures (in million)



Source: Allianz, calculations are based on market forecasts by Navigant Research (2014)



Not at all for seniors only

At present, people aged 50+ are still the most likely to use electrically powered bikes. However, surveys carried out in the U.S. and Western Europe suggest that younger urbanites are becoming more interested in e-bikes, with young professionals currently setting the trend.

E-bikes vs. pedelecs: what's the difference?

"E-Bike" is the generic term for electronically powered bicycles. Strictly speaking, 95% of all e-bikes are pedelecs.

E-Bikes

A bicycle with pedal assistance and an electric motor system which can be used to reach a speed up to **45km/h**. Classed as a motorcycle with insurance tags, not requiring registration (like a 25cc moped or a small-engine moped, for example).

Pedelec

A bicycle with pedal assistance and an electric motor assistance system with a maximum continuous rated power of 0.25 kW which decreases in terms of the assistance it offers as the bike's speed increases, and cuts out once a maximum of **25 km/h** has been reached.

New bikes, new dangers?

Are e-bikes at a higher risk of accidents than regular bicycles? There's no simple answer. In 2014, the German police department began differentiating between accidents involving standard bicycles, pedelecs and e-bikes in their official records. However, the first meaningful results in terms of the frequency of accidents involving e-bikes won't be available until 2016.

"This differentiation should be standard for every kind of accident statistic so that we can deduce precise information on the safety of electric bikes," advises Dr. Joerg Kubitzki, Allianz expert.



"There's already something to be gleaned from the statistics available today: two-wheelers (motorized and non-motorized) are at much higher risk. Globally, they make up over a fifth of all traffic fatalities"

Dr. Joerg Kubitzki, safety researcher at the Allianz Center for Technology.

Even though we don't yet know what proportion are e-bikes, there's no doubt that the risk of an accident will increase in line with how often people use these new bikes – not just in their free time, but also as a daily mode of transport.

Standard bicycle racks are usually not up to the task when transporting e-bikes



Safety when traveling with an e-bike

Look out for flying e-bikes! Many standard bike racks aren't quite up to the task when you need to transport an e-bike. This goes for both rooftop racks as well as racks that are attached to the tow-bar.

Pedelecs often tip the scales at more than 20 kilograms – considerably more than traditional bikes. The motor, battery and strengthened frame are to blame. In a recent crash test, the Allianz Center for Technology showed what the consequences of this could be: a head-on crash at around 50 km/h caused the bikes to be thrown out of the rack.

➔ [Find out more at: www.safetyfirst.tv](http://www.safetyfirst.tv)

Making friends with other cyclists: the most bicycle-friendly cities

The Copenhagenize Index evaluates cities' efforts around the globe to make cycling safer and more popular.

Cities are examined in 13 categories, such as cycling infrastructure, the city's political commitment and safety measures. In this year's ranking, only European cities made it into the top 12.

And Allianz is pleased: the analysis also looks at the number of people wearing helmets, and the obligation to wear a helmet.

Place	Town	Country	Last Year	Trend
1	Copenhagen	DENMARK	[2]	↗
2	Amsterdam	NETHERLANDS	[1]	↘
3	Utrecht	NETHERLANDS	[3]	→
4	Strasbourg	FRANCE	[neu]	↗
5	Eindhoven	NETHERLANDS	[8]	↗
6	Malmö	SCHWEDEN	[9]	↗
7	Nantes	FRANCE	[6]	↘
8	Bordeaux	FRANCE	[5]	↘
9	Antwerpen	BELGIUM	[7]	↘
10	Sevilla	SPAIN	[4]	↘
11	Barcelona	SPAIN	[17]	↗
12	Berlin	GERMANY	[10]	↘

Source: Copenhagenize Design Company (2015)

Switching from four wheels to two

More and more city dwellers pedal off on their bikes for short journeys, rather than driving or taking public transport. Across the EU, cyclists now make up 7% of passenger traffic; **in the Netherlands, this figure is at 27%**. Many cities are using their own cycling plans to encourage people to switch to two wheels – Austria, Germany, Finland, the Netherlands, and the UK are all promoting such concepts.

More people are hopping on their bikes again in Asia too: out of the ten countries with the highest number of bikes per household, six are Asian. But Germany leads the pack: 80% of households own a bike, with Japan hot on its heels (78%).

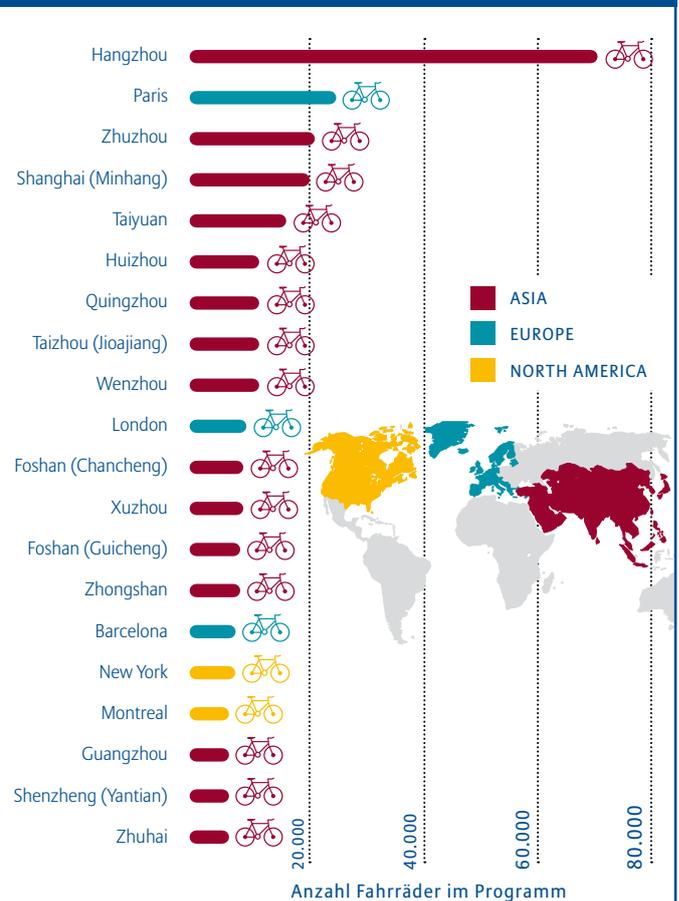
No need to spend a lot to ride a bike – use bike-sharing

It all kicked off in Amsterdam: the first bike rental station was set up in 1965. Over the past ten years, this service has become a widespread phenomenon, thanks to new technology like smartphones and GPS trackers. Worldwide, already **over 700 cities** offer various ways to share bikes. This leaves no doubt that cycling is becoming an increasingly important part of urban mobility.

China is leading the way down the cycle path: the country boasts more than 170 bike-sharing programs. Within Europe, it is Italy and Spain's bike rental programs, in 130 cities in each country, that are making their neighbors green with envy.

Paris' "Velib" system is the largest in the EU, with 1,700 stations and over 20,000 bikes to rent. Since its introduction in 2007, the number of cyclists on the roads has increased by 41%. In London you can rent one of the 10,000 "Santander Cycles" bikes. In Asia, the wheels of rented bikes are turning even faster: three of the four cities with the largest number of rental bikes are in China. **In Hangzhou, there are 78,000 bikes**, perfectly compatible with their subway network – and this is something that's becoming increasingly popular. Taking part in one of the various bike-sharing programs generally costs less than 100 USD (approx. 90 EUR) per year.

Renting couldn't be easier: the largest bike rental programs in the world



Source: Earth Policy Institute (2013)



While cyclists certainly play an active role in reducing the amount of emissions and air pollution, they also breathe in more of these than drivers

Cycling is healthy ... if you ignore air pollution

If you cycle regularly, you're giving your health a boost. According to a pilot study by the OECD, cycling reduces the risk of **obesity, cardiovascular problems and depression**. In addition, city planners are hoping that pro-cycling initiatives can help dramatically reduce emissions and create a healthier environment.

It's not just in the Netherlands that many people have swapped their cars for bikes. People living in China's cities, who are faced with alarmingly high levels of air pollution, are also putting their feet on the pedals: 37% of bike-sharing users in Hangzhou revealed in a survey that they were considering putting off buying their next car.

While cyclists certainly play an active role in reducing the amount of emissions and air pollution, they also breathe in more of these than drivers; particularly when waiting at traffic lights next to cars and motorcycles.

Parents with young children in their bike trailers should take note: at the level of the trailer, the amount of toxic substances in the air, as a result of emissions and particles stirred up from the road surface, is even higher. It's obviously healthier to cycle with kids in the countryside, rather than in densely-populated city centers.

Did you know ...?

The World Health Organization (WHO) estimates that around the world, **7 million people die annually** as a consequence of air pollution. Thus, in some cities, it's currently better to leave your bike at home if you want to look after your health. The top 10 most polluted cities are primarily in Asia, six of them in India alone.

→ [Find more information here:](#)
[„Ambient outdoor air pollution in cities“ \(WHO, 2014\)](#)

Helmets: unpopular but effective lifesavers

Cyclists are at **serious risk of being injured** in a collision with a car or truck.

More than 40% of serious or fatal injuries suffered by cyclists in collisions with cars are injuries to the head and brain.

These injuries result **twice as often** from hitting the head on the ground after colliding with a vehicle compared to hitting the head on the vehicle itself. But not all cycling accidents are linked to collisions with motor vehicles.



Across Europe, **a third** of cyclists who die on the roads are victims of single-vehicle accidents, which means that no other vehicles were involved.

In other words:
no matter where and when you are riding your bike, it's always safer to wear a helmet!



Managing Director of the Allianz Center for Technology,
Dr. Christoph Lauterwasser: "The probability of suffering brain damage without a helmet is over double that for someone wearing a helmet. Currently, only 15% of people wear helmets, and this is not acceptable, from our perspective."

Distractions from the handlebars can be dangerous

Regardless of whether you're sitting behind a steering wheel or handlebars: that's where your hands should always be. That's why you're not allowed to take calls on your mobile phone or text when you're cycling. And there can be consequences: in Germany, infringing this rule could cost you up to 25 euros. But you're allowed to cycle with headphones or hands-free equipment.

From the perspective of Dr. Kubitzki, road safety expert at the Allianz Center for Technology, cyclists should avoid being distracted by music or their phone. True, the police can't really prove you were listening to loud music, but you shouldn't put yourself at increased risk of an accident. Wearing headphones in both ears can block out outside noise and make you less aware of what's going on; to say nothing of the distraction they can pose.

Cyclists, like all drivers, need to be fully focused on the road. It's particularly important for cyclists to be able to hear what's happening around them: **cyclists' hearing is their version of side- and rear-view mirrors**. Cellphone, map, odometer, sat-nav... setting off on a journey without these would be unthinkable for increasing numbers of cyclists. But these affect your concentration and harm your alertness. Tragic incidents involving seriously injured cyclists year after year are testament to this.



No call can be that important: your hands should be on the handlebars! There can be consequences: in Germany, a fine can cost you up to 25 euros.

Eight tips for cycle safety

1 → Wear a helmet at all times – parents should set an example for children. If you fall, the helmet usually gets damaged and needs to be replaced: it stops to offer adequate protection

2 → Intersections are particularly dangerous for cyclists: pay extra attention

3 → The rules of the road also apply to cyclists, and you should use a hand signal when turning

4 → Reflective strips and light- and bright-colored clothing help car drivers to spot you quicker

5 → Don't cycle against the traffic unless especially authorized

6 → Don't cycle if you're under the influence of alcohol or medicine

7 → Making phone calls, texting and listening to music are all dangerous distractions

8 → Be particularly careful when crossing from a cycle path onto the road



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