



Cycling: the city changer

Cities around the world are looking to cycling as a way to cut congestion, reduce pollution and encourage exercise among their citizens, but how do you turn a network of crowded streets into a streamlined, safe and welcoming environment for cyclists?

"At a recent cycling event, one of the presenters said something that has stayed with me: cycling is a city changer," says Erik Kjærgaard, a civil engineer with Atkins in Denmark. "If you increase a city's cycle traffic – by taking space back from cars, analysing cycle traffic patterns, solving key issues around cycle parking, re-thinking cycle lanes – that city will change in ways that you could not achieve any other way.

"Implemented properly, a good cycling plan can help cut down on noise and pollution as well as speeding cars and traffic tie-ups, which also means fewer accidents," he adds. "It creates a more people-friendly city. And once you take that step, you'll never go back."

Planners are already starting to recognise the full range of potential benefits cycling offers. A recent British study found that

the UK could save £1.6bn in healthcare costs by matching Dutch levels of cycling investment (such are the benefits of keeping people healthy). A study in Copenhagen found that society benefits by 1.22 Danish kroner per kilometre cycled, when you account for health benefits, reduced congestion and fewer road crashes. (Every kilometre by car, by contrast, has a net social cost of about 1.13 kroner.) Cities

that lead the way in cycling will set the benchmark for others hoping to achieve the same results.

Cycling numbers themselves are also on the rise. In London, cyclists now make 570,000 trips a day, which is almost double the number made in 2001 and represents two per cent of total traffic (the goal is to increase this number to five per cent by 2020). In some central areas, bike journeys now account for almost a quarter of trips, a rate that would have been unthinkable a decade ago.

Likewise, cities such as Barcelona, Seville, Dublin and Bordeaux: today, bikes account for close to 10 per cent overall modal share and more people are joining bike lanes all the time.

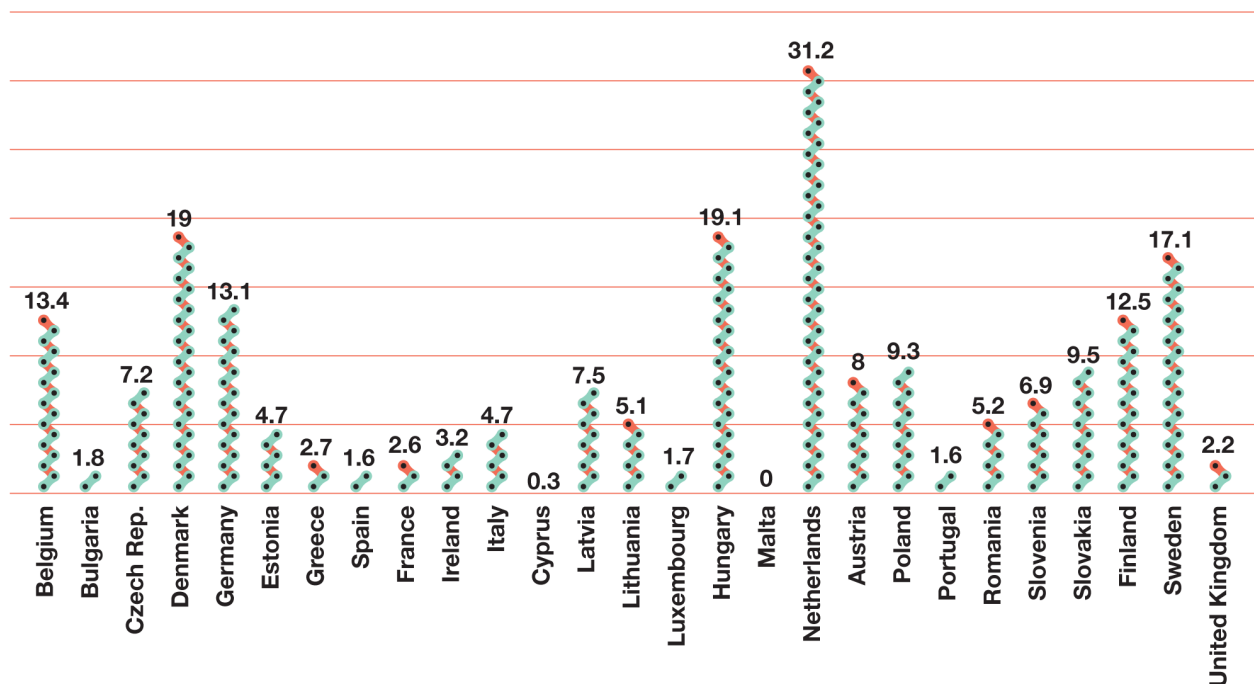
So why aren't more cities implementing large-scale cycling programmes? According to Kjærgaard, there are too few local governments and city planners willing and able to take that step. Legacy infrastructure issues alone can put any cycling strategy on hold and few municipalities are prepared to spend the money to address them properly.

"When a cycling project goes out to tender, it's often just that – a project, for a cycle lane here or a roundabout there. But many of the challenges involved in cycling require solutions that go beyond one-off projects," he says. "They require creativity in how you think about cycling, where it fits into the urban landscape. To do so requires more of a dialogue between planners and municipalities."

James Datson, cycle planning specialist with Atkins in the UK, agrees: "When it comes to cycling, each city is unique. You can't just cut and paste infrastructure solutions that work for Denmark or the Netherlands into London's streets, for example, without careful consideration and contextualisation of the different opportunities and constraints we face in the UK."

"At Atkins we want to drive innovation to rapidly progress improvements for cyclists on our highways, but we are very aware that we need to work hand in hand with clients to ensure delivery is effective on the ground. A key part of this is understanding, knowledge sharing and capacity building with clients."

Cycling usage as main mode of transport (% of population)



Source: "Future of transport: Analytical report". Flash Eurobarometer. European Commission. March 2011.

AN UPHILL CLIMB

For Andreas Rohl, bicycle programme manager for the City of Copenhagen – one of the world's most cycle-friendly cities – connectivity is key. People will only choose cycling if it's the most efficient mode, with a coherent network in place.

"You can't scatter facilities around," he says. "It's better to concentrate on specific corridors to create connectivity. If there's a hole in the network, people will tend to use another mode of transport."

In Hong Kong, meanwhile, cycling is considered a leisure activity under the government's transport policy, not a designated transport mode. This view is reflected in the strength of its current transport network versus the state of its cycling infrastructure.

"The transport network here is very well developed and railway is the backbone of the system," says Jacky Yeung of Atkins in Hong Kong, where the company is conducting a study for the Transport Department examining

SAFE AND SECURE

Getting to Dutch or Danish levels of ridership is going to take time. It's the sort of deficit you don't close overnight, at least not without attention to a range of factors, from investment to infrastructure and planning.

For Troels Andersen of the Cycling Embassy of Denmark in the municipality of Odense, the main difference between cycle-friendly cities and others is the level of protection on offer. For example, he argues that cyclists should have a lane separated from cars by a physical barrier.

This is particularly important if any city hopes to attract groups that traditionally are less likely to cycle, such as children and the over-60s, which is essential to any true cycling culture – "One of our main targets to have equal numbers of cyclists. It tells you that you have done your work well," Andersen says.

In Andersen's home city of Odense, he points out that 80 per cent of kids feel confident enough to either cycle or walk to school, whereas in a city like London it's not really possible for many children to cycle far, much less to and from school. This is a fundamental problem if cycling is ever going to be embedded in a city.

"The primary goal should be to make it possible for children to cycle safely to school, to the shops or wherever they need to go, with or without their parents," adds Kjærgaard. "They are the first step towards a truly cycle-friendly culture. If they are safe on the

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This becomes apparent when you compare cycling cultures in different countries.

In the United States, for example, such holes can be caused by the different planning priorities in place at state and local levels. State funding tends to be more car oriented, bringing more cars into cities by building highways. At the local level, municipalities and local authorities are focusing on creating people friendly cities.

The challenge is to ensure that politicians at all levels understand the benefits of cycling both locally and state-wide, and that the demand for more cycling (and public transport) in cities is both heard and addressed.

possible improvements to existing cycling facilities. "Railway reaches most of the districts, whereas some areas are not accessible by cycle tracks and it's quite difficult to extend them to the urban areas due to space constraints. In view of the local transport background, cycling represents only a small proportion of the population."

By sharp contrast, Atkins' Kjærgaard estimates that most of the main routes in large Danish cities have dedicated, connected cycling lanes. In Copenhagen, upwards of 35 per cent of all trips are made by bike – "even the busiest and most important streets feature separate cycle lanes," he points out – and the city is aiming for a 50 per cent modal share by 2020.

roads, you know that everyone else will be safe as well.

"A city like London needs to decide to start the process where it can and grow from there, otherwise it will never change," he says.

"Look at the city's existing bus lanes, which often share space with cycle lanes. This is a very dangerous combination and you can't grow your cycle traffic based on this approach."

Atkins is already working on cycling projects to address issues such as these, such as the Barclays Cycle Superhighways running from outer London into central London.

The company has also designed and developed a suite of tools for the UK Department for Transport's National Cycle Network Database, which allows the Transport Direct route planning service to include detailed cycling options.

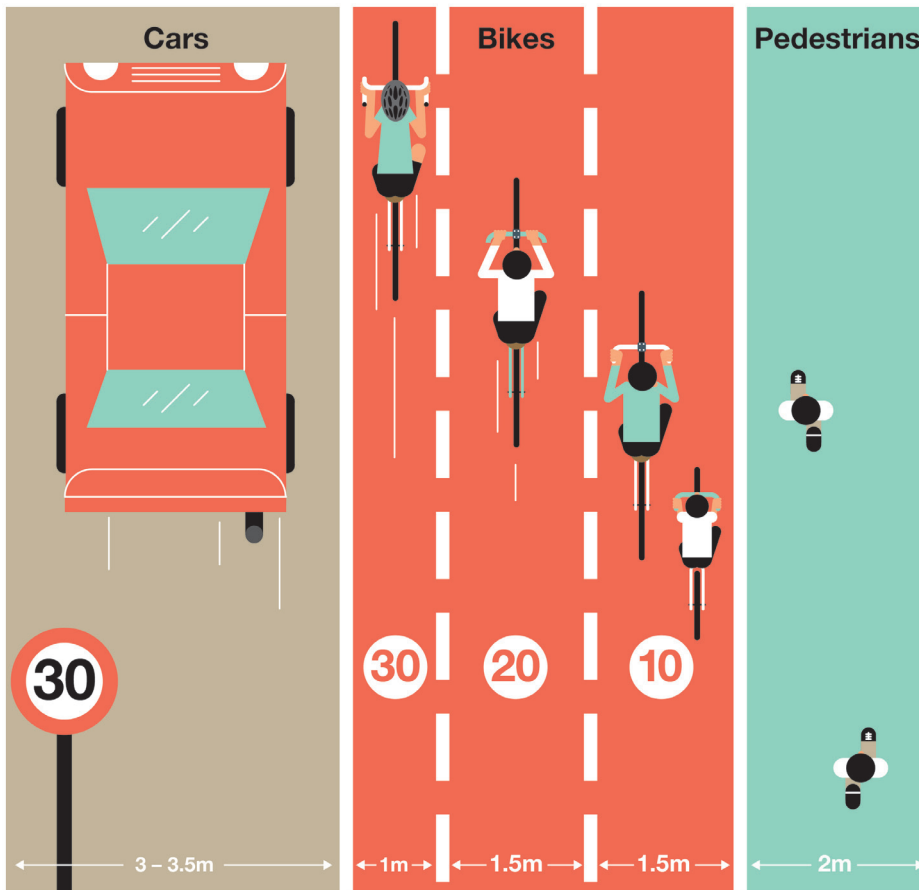
The UK government is also stepping up to the challenge, announcing the "biggest ever single injection of cash for the country" to make roads safer for cyclists.

"This government wants to make it easier and safer for people who already cycle as well as encouraging far more people to take it up," said Prime Minister David Cameron at the announcement of this major investment, "and business, local government, developers, road users and the transport sector all have a role to play in helping to achieve this."

According to the plan, £77 million will be divided between Manchester, Leeds, Birmingham, Newcastle, Bristol, Cambridge, Oxford and Norwich, while the New Forest, Peak District, South Downs and Dartmoor will each share a slice of £17 million funding for national parks. Combined with local contributions, this represents £148 million being spent on cycling safety between 2013 and 2015.

PARKING AND COUNTING

While cycle lanes are important, they're not the whole story. Planners need to be aware of some of the larger, equally important planning issues. For example, parking becomes increasingly important as cycling becomes more popular. Cities like Amsterdam and Copenhagen have a problem of bikes stacked up outside rail stations and other high volume areas – "Bicycle parking is definitely one of the areas where we can do a lot better in Copenhagen," Rohl says.



Atkins' Kjærgaard proposes cycle lanes divided according to average cycling speeds: 30kmph for faster cyclists riding in the segment closest to traffic to 10kmph for less confident riders close to the pavement – "People closest to moving traffic could match its speed," he explains, "while the middle lane runs at 20kmph and the lane closest to the pavement would be for less experienced cyclists, who could ride without blocking others. This is the ideal solution, with all three groups of cyclists accommodated on any road."

Atkins has been involved in several projects to try alleviate the problem. For example, in 2011, it developed “flex-parking” where bikes use a space for parking from 7am to 5pm, then it reverts to car parking in the evening. The only drawback is that the owner has to leave it free-standing, which could leave it vulnerable to theft.

facilities that climb into the sky? Do we use existing buildings? Or do we hide them below ground?

“And if we rebuild the station but only allow for 2,000 bicycle parking places, how does that help? Or if we have a Metro station with only 200 places when 500 are needed? Or we have a

the railway stations and major attraction points. Most people will park their bike outside designated parking spaces, often arbitrarily. It’s an institutional problem and requires long-term planning approach to tackle.”

To do so, Yeung says that supply and demand have to be carefully mapped and matched: “For example, parking spaces near residential areas and transport nodes are very popular but often at different times. The challenge is to make sure that parking spaces are well used and properly used.”

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Kjærgaard reckons there are at least 15-20 “really important locations” in Copenhagen that need two to three times more bikes spaces. He is working on a project with the city to identify up to 12 parking solutions – in locations where new parking could be implemented or wholly new parking concepts.

square in the central city area that should have had 1,100 places instead of 300? None of these are preparing the city for the future.

“We need to be able to increase the capacity step by step until we have fulfilled the actual need,” he says. “The point is to plan for the next level.”

“Take one of Denmark’s largest railway stations, for example,” he says. “If we know we need room for 4,000, 6,000 or 8,000 bicycles but there’s only room for 1,000 right now, how do we solve the problem? “Do we build parking

Atkins’ Yeung agrees this is an issue: “In Hong Kong, cycle parking facilities are provided mainly by the government and according to regulations, cyclists are not allowed to park over 24 hours – it’s mostly short trips, to

Ultimately, everyone agrees that, if cycling is to become part of the culture, it requires a ‘Cities 8-80’ strategy, explains Kjærgaard: build cities so that everybody between eight and 80 years of age can travel on their own, cycling or walking, thereby making it a city for everybody.

But changing a city takes time, investment and imagination, and the latter can be the greatest obstacle of them all.

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