

1. Research notes



The combined use of bicycles and trains in the Netherlands: a promising mode of transport in a suitable environment

Research notes

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The combined use of bicycles and trains as part of the same trip is becoming normalised in densely populated urban areas in the Netherlands. This article summarises the main insights of academic literature on the topic with special attention paid to the limits and potential for growth of this bicycle-train system and policy interventions. A key question researchers are asking is: could it be replicated in other regions?

Research participants

- Javier Caletrío

Billed as a promising development in reducing car use in the short term, the combined use of bicycles and trains as part of a trip chain is receiving growing attention. And the Netherlands is leading the way. With around 47% of train passengers arriving to train stations by bicycle, it is perhaps not surprising that it is in the land of the bicycle with its densely populated urban areas where this way of travelling is becoming an integral part of life.

How did it emerge? What implications does it have for lifestyles and the design of transport networks? How can this trend be accelerated? Can it be replicated in other cities and countries? Do questions about the relocalisation of residential and commercial activities need to be reconsidered around cycling and train distances rather than walking distances? What implications does it have for land use and land value? Does bicycle-train travel require an alternative system of governance to cycling and train travel?

The interest that these questions are generating at academic and policy forums contrasts, however, with how little we can say about them, how little we know about this way of travelling, what makes it work and its implications for lifestyles and territorial dynamics. This article summarises main insights from existing published research on the topic and highlights some of the questions that researchers have identified as deserving further attention.



Bicycle storage area at Houten train station, Netherlands. Credit: Martin Bond / Alamy

A distinctive travel mode in a favourable ecosystem

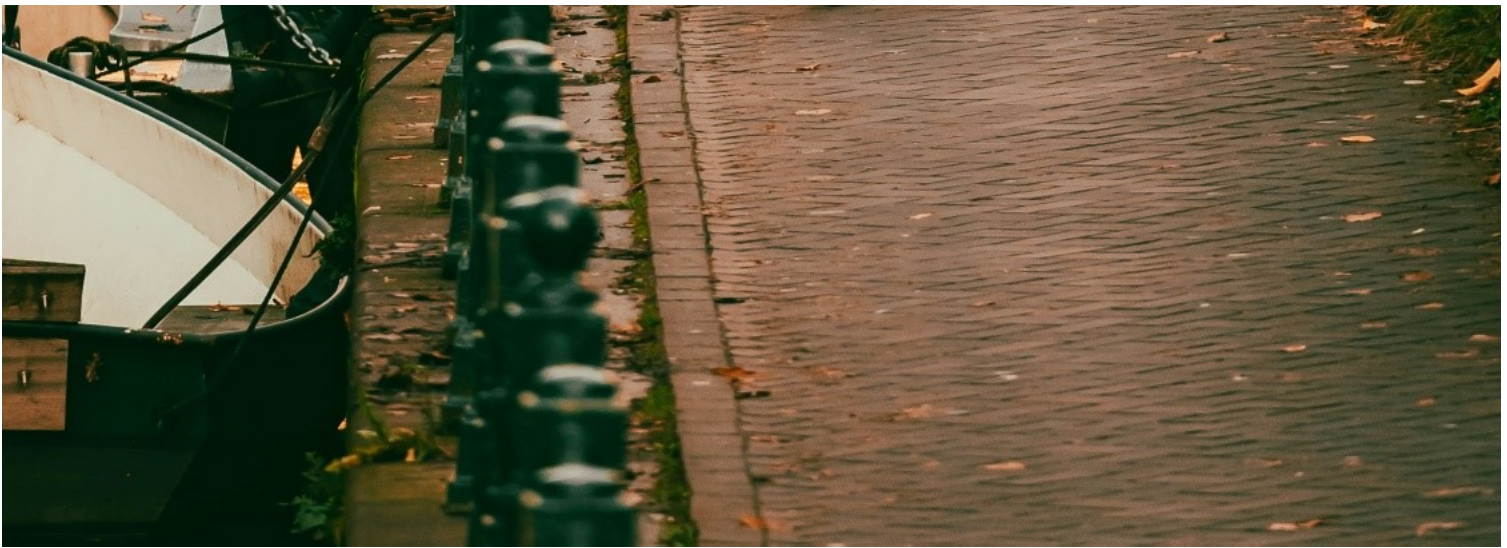
Bicycle-train travel has a distinctive, simple advantage: it combines the spatial flexibility of cycling with the speed of train travel. In so doing it expands the spatial reach of cycling and increases the door-to-door accessibility of the train. And because average bicycle speed is roughly three times faster than average walking speed ¹, cycling can, in principle, cover a distance that is three times greater. Experts have calculated that with this speed the bicycle can cover a catchment area which is nine-fold larger, increasing the number of households with access to train stations by bicycle. ² This greatly increases the potential to reduce car use in territories with an established cycling culture, an extensive cycling path network and frequent and reliable railway services.

The Netherlands meets these three basic conditions. Regarding cycling, a quarter of the population cycles every day, and on average a Dutch person cycles 1,000 kilometres a year over the course of about 250 to 300 cycle trips, which is more than in any other country in the world. ³ More than 60% of the population has a positive attitude towards cycling; it is estimated that there are over 23.4 million bicycles (of which over 2 million are e-bikes) in a country of just over 17.6 million inhabitants ⁴.



Amsterdam has a reputation as a bicycle-friendly city. Credit: Charlie Red





More than a third of daily journeys in Amsterdam are done by bicycle. Credit: Peyman Shojaei

Cycling is perceived to be so intrinsic to Dutch identity that the Dutch Cycling Culture has been nominated for a place on the national list of UNESCO intangible heritage. The modal share of cycling has been more or less stable for the last three decades at around 28% of all trips, covering 10% of all national km travelled and 21% of travel time. Measured by kilometres travelled, bicycle use has increased by some 12% since 2005 (this is explained by growth in the number of cyclists and growth in mobility per capita).



Almost half of the total distance travelled by conventional bicycles in the Netherlands is for leisure purposes. Credit: Jian Liu.

Such high levels of cycling are facilitated by the most well-developed cycling network in Europe, stretching over 35,000 km of cycling paths physically segregated from motor traffic which is equal to a quarter of the country's entire 140,000 km road network. In addition to this, around 70% of Dutch urban streets have a speed limit of 30 km/h.⁵



Segregated cycling path (pink) and bicycle parking in Alkmaar, Netherlands. Credit: Marek Lumi.



Segregated cycling paths (pink) near a roundabout. Credit: Ezra



A 220 metre long bike path and footbridge over a highway and railway track, part of a cycle network in the future nature reserve New Driemanspolder in Zoetermeer. Credit: Jochen Tack / Alamy

As for the railway network, there are over 400 train stations, the track length is 7,000 km, and since 2017 all trains have been powered by wind-generated electricity. With around 1.5 million travellers daily it is the busiest railway network in Europe⁶ and more than one in ten of all trips of more than 15 km are train trips.

Of all train journeys 83% are multimodal trips and within this share the combination of bicycle–train for access to the station represents around 47% of all train passengers (up to 70% in certain stations). The key aspect of this outstanding figure is that it continues to grow (up from 30% in 2001)⁷, reflecting similar

trends in the overall number of bicycle and train trips in and between Dutch cities. Bicycle trips from the station to the final destination have also increased from 10% to 16%, a development partly related to the introduction of rental bicycles for train season-ticket holders.⁸ During this period train trips have increased by 36%. This means an increase in the absolute number of bike-train trips.

Greater scope for growth

Cycling advocates argue that there is scope for further growth. One of the reasons for this is that half of all car journeys are shorter than 7.5 km (which is within a cyclable distance) and one third are shorter than 5 km. In addition to this, of all trips between 7.5 and 15 km, 70% are made by car and 15% are made by bicycle. It is relevant to consider here that with the advent of electric bicycles, the bicycle range increases up to 15 km.



Amsterdam Central Train Station. Credit: Marek Slusarczyk / Alamy

Scope for further growth is also found in the high density of a predominantly urban population⁹. This is especially the case around the Randstad area (which includes the cities of Amsterdam, Rotterdam, Utrecht, The Hague, Haarlem, Hilversum, Dordrecht and Leiden)¹⁰ which is the most densely populated area of the Netherlands, a country which is one of the most densely populated in the world. In this area the total trips made by cycling and by transit have surpassed the number of trips made by car. Randstad has an established cycling culture and a quality train network, with a service frequency of up to 10 min between main cities. In addition, this area is characterised by large commuter flows between its main cities and surrounding areas which also increases the potential appeal of bike–train travel. Travel time from the centre of Arnhem to the Rijksmuseum in Amsterdam (approx 100 km) is the same for both the bike/train combination and the car (around 1hour 15 minutes). Travelling from Utrecht to Amsterdam (approx 40 km) is now also as fast by bike/train as it is by car (40 minutes).

Factors limiting development

Researchers have identified two factors which are potentially limiting the development of bicycle-train travel: lack of bike rental schemes for egress trips and insufficient bicycle parking facilities at train stations.

Bike rental schemes

In the Netherlands most access trips take place between an individual's home and the train station. Once at the train station the bicycle is parked inside or near the station but not carried inside the train, which would be unfeasible considering the number of cyclists taking trains. This means that egress trips (between the station at the end of the train journey and the final destination) can only be made by bike if there are rental bicycles available. There is, however, comparatively low availability of bicycles for the egress trips which may be constraining the growth of bicycle–train travel as it reduces the scope for personalising a traveller's entire trip. Providing rental bicycles is therefore important for making the train-bicycle combination more attractive.

A small-scale rental scheme called OV-Fiets (literally meaning public transport bicycle) was introduced in 2004. It started with 800 bicycles, by 2016 it had grown to 9500 bicycles and it currently operates around 22,000 bicycles distributed across 300 hire locations. This scheme is run by NS (Nederlandse Spoorwegen - Dutch railways). OV-Fiets currently has around 500,000 regular users. Each subscriber has a pass with a bar code that can be scanned to access the bicycle. Since 2017 membership has been free and the daily rental price is € 4.45 per day (24 hours)¹¹. After the first 3 days (72 hours) it costs € 9.45 per day. Users need to return the bicycle to the same hire location and a € 10 fee applies if the bike is left at a different location. The total cost of renting is directly paid from the user's bank account at the end of each month.



Rental bicycles at Veenendaal-De Klomp railway station. Credit: Fantaglobe11 CC BY-SA 4.0

Despite the remarkable growth, demand for rental bikes still outstrips current supply. This explains (at least in part) why, even though the percentage of trips made to the station by bicycle continues to grow (from 33% to 47% in the period 2013-2016) the percentage of egress trips made by bicycle remains constant. The provision of rental bikes is seen as a necessary step to increase train travel.¹²

Bicycle parking facilities at transit stations

The effective integration of the bicycle and the train systems requires a seamless transfer from the bicycle to the train. This can be achieved by building bicycle parking areas inside the train station with easy access to the train platform and the station hall. The seamless transfer can be further improved by connecting the parking facilities to the local cycle network.



Entrance to the Rotterdam Central Station, Rotterdam, Netherlands, 2016. Credit: Jurria An

Progress is being made in this direction. Improving connections at the first and last mile has been a priority since at least the 1990s and this has included active efforts to increase the quality and quantity of bicycle parking. From 1999 to 2012 the investment programme 'space for the bicycle' sought to make available 400,000 new bicycle parking spaces by 2012 and in the last ten years more than € 221 million was invested as part of the Action Plan for Bicycle Parking at Stations to create an additional 100,000 spaces. A further € 200 million was allocated in 2020 to create 100,000 more new parking spaces by 2025.



Bicycle parking under solar panels at Wijchen train station. Credit: Fantaglobe11 CC BY-SA 4.0

Now in 2023 every station in the Netherlands has one or more bicycle parking facility (either at street level, indoor or underground), 106 of which offer secure parking garages, with half of these operated automatically and half staffed by attendants. More than 30 stations now offer on-site repair shops. These developments are encouraging but insufficient as the number of train travellers arriving to the station by bicycle continues to outpace the creation of new bicycle parking spaces.

Case: Stationplein parking facility at Utrecht Central Station

Among the stations offering secure parking facilities Utrecht Central Station garage has received considerable media attention. This three-storey, 350 metre-long facility occupying 17,100 sq metres took five years to build, and opened partially in August 2017 with initial 6,000 parking spaces, and fully in August 2019 with an additional 6500 spaces, making it the largest bicycle parking facility in the world.



Parking facilities at Utrecht Central Station. Credit: Jochen Tack / Alamy

Access to the garage is by bike and parking is free for the first 24 hours. Beyond that Dutch Railways charges € 1.35 per day (the fee is € 0.55-0.65 per day at garages that operate automatically). The facilities are open 24/7 and cyclists check in and out with their public-transport chip card. The upper and lower floors are for bicycles parked during the day and the middle floor is reserved for bicycles owned by parking card holders (residents can buy a bike storage pass for € 80 a year). In addition to the 12500 parking spaces there are also 1000 OV-Fiets.



The bicycle garage in Utrecht train station includes repair services. Credit: Jochen Tack / Alamy

The garage includes a special area for bicycles with different shapes (e.g. cargo, 'mummy/daddy-bicycle') and offers a service point for repairs, maintenance, parts and accessories. Forty people are employed at the facility and wardens ensure that bicycles are correctly parked. They also remove bicycles that have not been used after 28 days. If a bicycle is stolen the owner is entitled to a reimbursement of € 750. This new garage with its 12,500 spaces is part of a set of parking facilities around Utrecht Central Station totalling around 33,000 bicycle parking spaces.



Credit: Jochen Tack / Alamy



Member of staff at the bicycle garage. Credit: Ton Koene / Alamy

Map of the facility: <https://www.utrecht.nl/fileadmin/uploads/documenten/wonen-en-leven/verkeer/fiets/fiets-stallen/Fietsenstalling-Stationsplein-plattegrond.pdf>

Bicycle parking Stationsplein Utrecht



As the number and size of the bicycle parking infrastructure grow so do the associated costs, due to the need to operate in increasingly complex station surroundings (i.e. need to integrate complex cycling infrastructure in areas with competing public and commercial uses) and to meet the needs of growing numbers of train travellers arriving to the station by bicycle. With rising costs a key concern of the partners involved is how the cost is distributed.

In the case of the Utrecht Central Station the cost was over € 30 million (more than € 2400 euros per parking space) covered by ProRail (the public body in charge of the maintenance and extension of the national railway infrastructure), the city of Utrecht, the Ministry of Infrastructure and Water Management, Nederlandse Spoorwegen (NS - rail passenger management) and the European Union, via the CEF (Connecting Europe Facility). The garage is owned by the city of Utrecht. The total investment in parking facilities around Utrecht Central Station has been around € 50 million.

Logistical problems: second bikes and 'wild bikes'

A logistical problem that transport planners face is that in some stations most spaces (up to 80%) are filled by 'second bikes' used by travellers for egress transport (i.e. the traveller uses a first bicycle to access the station from home and a second bicycle from the end of the train journey to the final destination). These travellers only make 12% of transit journeys which means that they occupy a disproportionate amount of parking time. This phenomenon had not been anticipated.



Outdoor bicycle storage space, Amsterdam. Credit: Alice

The building of bicycle parking stations is also partly related to the desire to maintain train station squares and their surroundings as attractive public spaces. Busy stations with limited parking facilities faced the problem of large numbers of bicycles being left in unsecured parking spaces outside the station and randomly parked bicycles in the vicinity. Meanwhile monitored parking often remained underused. The Dutch railway operator addressed this issue by making parking in monitored areas free for the first 24 hours. After the first 24 hours a small amount of money is taken from personal public transportation card. This new arrangement has made parking more efficient, increased occupancy and helped to deal with abandoned bicycles.¹³ Although this measure and the building of new parking facilities have been well received by users, cycling campaigners have criticised the fact that new parking stations are often accompanied by a no-tolerance policy towards on-street parking.

Increased catchment areas by active modes

A key aspect of bicycle-train travel is that as it grows and as barriers to growth are gradually removed, new dynamics emerge or become more prominent. As a greater part of the population uses the bicycle to access train stations, the catchment area by active modes of each station grows and overlaps with those of other stations. These more complex catchment areas not only have implications for personal travel options but also for the design and management of the railway network, mainly in terms of the distribution of stop locations over the territory, the train and other transit services and facilities offered at each station, and, in the longer term, the building of new stations and land use change.



Researchers suggest that bicycle-train travel is reshaping urban spatial dynamics. Credit: Smiley Toerist

The redrawing of the boundaries of catchment areas is an interesting process because only around 20% of the Dutch population lives within a 1 km walking distance of the 400 stations in the national system. This rises to around 70% and 80% for a cycling distance of 5 km and 7.5 km. Regarding intercity travel, only 1.1% of the Dutch population lives within a 1 km radius of the 17 main intercity stations, compared to 16-24% living within cycling distance.

Acceptable walking time to transit stops varies depending on the attributes of each station and the services available there (from 500 m for local bus stops to 2.2 km for an intercity station). Acceptable cycling distances can vary between 1.5 km to a local station and 7 km to an intercity station. This means that cycling increases particularly the catchment area of stations higher in the railway network hierarchy. Faster modes have wider catchment areas.

Changes in travel patterns

From an individual perspective, an overlap of catchment areas of nearby stations increases significantly the choice of access and egress stations (each one offering different facilities and services), the number of train services, and the choice of cycling routes to access (and return from) a train station. The result is an increase in the flexibility and convenience of non-motorised travel.

Despite these practical advantages, the potential of this mode of transport for lifestyle change remains poorly understood. Research on people practicing bicycle-train travel has focused mainly on the uptake of this mode of travel, on who these people are and the reasons behind their behaviour. In the Randstad area bicycle-train travellers are generally young (in their twenties and thirties) and physically fit. Those taking up this mode of travel tend to fall within three categories: those who are dissatisfied with their commuting practice, including car drivers and those who used to travel to the train station on foot; those who after changing work or residential location see bicycle train travel as a more convenient way of commuting; and individuals who are starting commuting such as university students or people moving into their first job.

The fact that one in five bicycle-train travellers used to commute by car and that a majority of them have access to a car but prefer the bicycle-train combination when it is available supports the argument that this mode of travel does have the potential to reduce car dependency. This highlights the crucial importance of providing the right infrastructure to facilitate a shift in behaviour which is sought mainly for reasons of convenience and saving time and money, but which is also described in terms of helping to fulfil a desire to live more healthily and sustainably.



Students at the bicycle parking space at Delft train station. Credit: Fer Troulik

Importantly, researchers have found that people who know bicycle train travellers are more likely to emulate this behaviour. This important insight suggests the possibility that as more people embrace this mode of travel the increase in demand will grow in a non-linear way and this has implications, for example, for planning new parking facilities based on higher-than-current growth rates.

Policy interventions

The integration of bicycle and train generates dynamics that would not exist if each system operated independently. Integrated planning and management should be aware of and responsive to these dynamics. Its remit should include issues ranging from the integration of signage, maps, travel information and ticketing subscriptions¹⁴, to communication, promotion and long-term decisions about land use and economic development. From the outset this integrated planning and management should require a change of mindset to conceive of bicycle-train travel as a distinct form of transit.

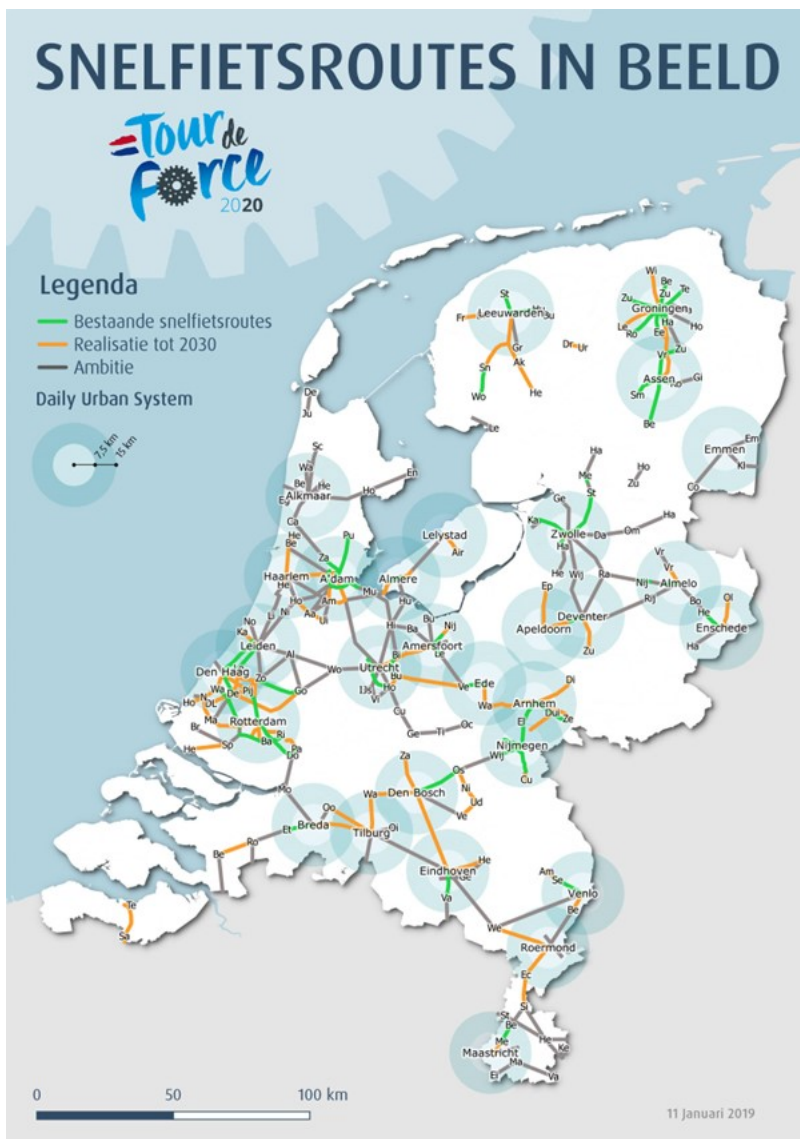
Policies to deal with bicycle-train travel have for the most part been reactive rather than proactive (addressing problems when they emerged rather than seeking to take advantage of the potential for positive change in transport and public space). Bicycle-train travel is still growing faster than the infrastructural and operational capacity provided, and transit and planning remain largely independent areas when it comes to management, lobbying, data, monitoring and research. Experts agree, though, that recent interventions are helping to remove barriers that slow down growth.

Milestones in the integration of bicycle – train travel

In 1999 the Dutch Ministry of Infrastructure and Water Management launched the Bicycle Parking at Railway Stations Programme (Programme Fietsparkeren bij Stations) following demands by the Dutch Cyclists' Association for funds to improve bicycle parking at train stations. The government allocated 163 million euros to this programme for the period 1999-2012 and ProRail was in charge of the execution. The first phase of the programme was from 1999 to 2006. ProRail covered 100% of the costs until 2012 but after this time it required local authorities to agree to co-finance half of the costs before approving any project.

In 2012, the Ministry published the 'Action Plan for Bicycle Parking at Stations' which covered the period 2012-2020 and which had a total budget of 221 million euros. The plan was formulated in cooperation with municipalities and provinces. ProRail and NS were also key contributors.

In 2015 the Dutch Government launched the 'Tour de Force Programme', an overarching cycling strategy developed with 23 stakeholders which aims to increase the number of kilometres travelled by bicycle in the Netherlands by 20% by 2027. The first stage of the programme ran from 2017 to 2020 and the second, ongoing phase runs from 2020 to 2027.



Map showing existing (green), under construction by 2030 (orange) and projected but as yet not funded (brown) fast cycling routes in the Netherlands. The circles show the radius of distances deemed to be feasible by conventional and electric bicycles: 7.5 km (light) and 15 km (dark). Tour de Force 2020

One of its six key themes¹⁵ is the encouragement of multimodality and more specifically the bicycle-train travel combination. The provision of more and better bicycle parking at train stations in order to meet the expected increase in demand is a key priority and in 2020 the government allocated an additional 200 million euros to create another 100,000 parking spaces by 2025. In the Tour de Force Programme the Dutch Government sees itself as a networking partner, facilitating collaborations, commissioning research, amending regulations and co-funding projects.

These programmes mainly concern the provisioning of parking spaces and, in general, are regarded as having had a positive outcome. These schemes have helped to create around 100,000 bicycle parking spaces at train stations, bringing the country's total to around half a million. These programmes are also seen as having improved the dialogue between government, rail companies, municipalities, regions and civil society actors. However, other elements of the integration of cycling and train travel such as the planning of new stations, changes to timetables and major new cycling routes have remained largely uncoordinated.

To sum up, in the past 20 years the number of people cycling to train stations has increased significantly and actions to facilitate parking have resulted in many large indoor and underground bicycle parking facilities at train stations. It has partially succeeded in reducing the anticipated deficit in bicycle parking spaces, especially at smaller stations. The introduction of a successful bicycle rental programme has also been a positive development. However, there has been only limited progress in information integration (cycling inclusive travel planners from door to door being either lacking or under-developed), and pricing arrangements to combine cycling and trains are virtually non-existent.

Final reflections

Mobility is in transition. A key question is what political and moral choices inform the transition models in play, the objectives and the tools used to achieve such objectives. In France, Pierre Helwig's proposition is clear¹⁶: we need mobility options that work for everyone in all urban territories and which can be implemented in the short term. This requires reorganising and repurposing existing transport networks to create multimodal networks that are easily understood, coherent and strongly interconnected. The case of bicycle-train travel in the Netherlands shows that, in developing this vision of reliable and democratic multimodal networks, we need a dynamic systems approach that can raise awareness from the outset of the design stage, of potential unplanned and unexpected synergies between different aspects of the systems involved.

Born almost spontaneously, bottom up, from the development of a mature cycling culture in an area with a dense railway network, the bicycle-train system has increased the catchment area of train stations. This has repercussions for the design of the railway network: How many stations should be built in an area where most train users arrive to the station by bicycle? How many train services will each station offer? With what capacity? Is this enlargement of the catchment area impacting the value of land? If so, what are the implications on the spatial distribution of different land uses and, in turn, on mobility patterns? Would an urban area where everyday mobility takes place predominantly by bicycle-train travel look and feel different to a city where this combination

between the train and the bicycle does not exist, all other things being equal? What does it mean to organise a neighbourhood and its train connections based on cycling distances and cycling travel time rather than by walking distances? Is this desirable?

Considering that the behaviour of the bicycle-train traveller is a bottom-up phenomenon, could top-down planning recreate the emergent bicycle-train system? Is a combined planning department for the bicycle-train system needed? And, if so, on what level of government should it operate?

Despite theoretical advantages, bicycle-train travel is limited worldwide. In the European Union on average around 4% of rail users arrive or depart from the train station by bicycle. In the UK cycling to the railway station is around 2% of passengers. What are the prospects for the development of this travel mode in places with a very small cycling population? Are there any cases exemplifying different development paths under different political, economic, urban and infrastructural contexts? And what is the potential of bicycle-train travel for holidaymaking?

Bicycle-train travel offers the potential, at least in principle for parts of the population and for some journeys, to plan urban areas and connect territories without the need for cars. But the case of the Netherlands needs to be studied with caution. Despite the impressive figures about the popularity of cycling-train travel, and despite all the attention that international media is paying to majestic bicycle train stations, the Netherlands is a country where the car remains king. There are over 9 million cars on the roads in the Netherlands (one and a half million more than a decade ago) and the number of cars per 1000 people has gone from 197 in 1970 (when the car was regarded as a problem to be tackled) to 662 in 2019. In 2019 Dutch drivers drove 122.5 billion kilometres, an increase of 1.9% from 2018 which had itself seen an increase of 1.2% from 2017. Number of kilometres driven per car per year is not smaller than similar western European countries. Can bicycle-train travel help to create mobility systems that work for all in all urban territories without bold policies to reduce car use?

Selected literature about bicycle-train travel

Brons M., Givoni M., Rietveld P., « Access to railway stations and its potential in increasing rail use », *Transport Research Part A: Policy Practice* 43/2 , 2009, p. 136-149.

Cervero R., Caldwell B., Ceullar J., « Bicycle-and-ride: build it and they will come », *Journal of Public Transportation* , 16/4, 2013, p. 83-105.

Jonkeren O., Kager R., Harms L. et al., « The bicycle-train travellers in the Netherlands: personal profiles and travel choices », *Transportation* , 48, 2021, p. 455-476.

Kager R., Bertolini L., Te Brommelstroet M., « Characterisation of and reflections on the synergy of bicycles and public transport », *Transport Research Part A* , 85, 2016, p. 208-219.

Kager R., Harms L., « Synergies from Improved Bicycle-Transit Integration: Towards Integrated Urban Mobility », *ITF* , Paris, 2017.

Krizek K., Stonebraker E., « Bicycling and transit: a marriage unrealized », *Transportation Research Record* , 2144, 2010, p. 161-167.

Martens K., « The bicycle as a feeding mode: experiences from three European countries », *Transport Research Part D* , 9, 2004, p. 281-294.

Martens K., « Promoting bike-and-ride: the Dutch experience », *Transport Research Part A* , 41, 2007, p. 326-338.

Piersma F., Ritzema W., *Fietsparkeren bij stations. 20 jaar ontwikkeling* , ontwerp en realisatie, Bussum, Uitgeverij THOTH, 2021.

Rietveld P., « The accessibility of railway stations: the role of the bicycle in The Netherlands », *Transport Research Part D* , 5, 2000, p. 71-75.

Notes

1 Estimated speeds for the Netherlands are 15 km/h for cycling and 5–6 km/h for walking.

2 'With a typical cycling speed 3 times higher than rapid walking (15-18 km/hr vs 5-6 km/hr), cycling can cover a 3 times the distance in the same time. In particular, the quadratic relationship between the radius and the area means that cycling can cover a 9 times larger catchment area than walking.' (Kager and Harms 2017).

3 37% of all kilometres are travelled for leisure purposes; 24% involve work-related trips.

4 This means that there are 1.3 bicycles per capita, the highest figure in the world. Bicycles are owned by 84% of the Dutch. That means there are some people who have more than one bicycle.

5 The average speed of a Dutch cyclist is 12.4 km/h and the speed on an e-bike is 13 km/h. Source: <https://bit.ly/3NpEVxD>

6 For comparison, in the UK there are 2,579 train stations and the number of people using the train daily is 1.8 million out of a population of 67.3 million. In France there are 3,054 train stations and around 4 million daily train users out of a population of 64.5 million. Within the Dutch transit system, most of the rapid transport is delivered by railway system. The train accounts for 5.7% of all daily transit services in the Netherlands and 21% of all service km, yet the train covers 97% of express services and 99% of express service km (more than 60km/hr effective, straight-line speed).

7 Distance cycled per capita per year between 1990 and 2017. Netherlands: 1994-1997: 875, 2014-2017: 899. France: 1994-1997: 83, 2006-2009: 97. Denmark: 1994-1997: 666, 2014-2017: 616. England: 1994-1997: 69, 2014-2017: 90. Switzerland: same figure both periods: 329. Norway: 1994-1997: 161, 2014-2017: 236.

8 In 2008 such rental bikes were used for 0.5 million rides. This figure was 1.9 million in 2015 and 3.2 million in 2017, 5.3 in 2019 and 3.4 in 2021.

9 In 2023 the population of the Netherlands is estimated at 17.6 million people and the population density is 522 per sq km. The total area is 33720 sq km. 91.6 % of the population is urban (16143184 people in 2023).

10 The population of these cities range from 741636 in Amsterdam to 515,000 in The Hague, 162500 in Haarlem, 121000 in Leiden and 90000 in Hilversum.

11 The price has increased from € 2.75 euros in 2003 to € 3.85 euros in 2017 to € 4.45 in 2024. See: <https://www.ns.nl/en/door-to-door/ov-fiets/how-it-works.html>

12 Other options for making bicycles available for egress trips: (a) Take one's bike onto the train. Folding bicycles can be transported for free. Ordinary bikes are allowed outside peak hours for a charge; (b) Commuters have a second bicycle at their destination station to cycle to their job; (c) Rental or public bicycle.

13 Local governments are also encouraging companies to build their own bicycle parking facilities. An example is the headquarters of Rabobank Utrecht which were recently moved to a new building. Rabobank has an active mobility policy which includes encouraging employees to commute by bike or public

transportation. To encourage its 6000 employees based at the new headquarters to come by bicycle, a new parking infrastructure with 1,300 bike parking spaces was built. The bicycle parking can be accessed directly through an already existing public bike lane and bike storage can be opened with an electronic pass to ensure safety of the bicycles. The facilities have changing rooms, showers, 800 lockers and a bike repair station. Although the company anticipated an increase in use, there is already shortage of the bike racks.

14 Examples: cycling signs showing direction to transit stops, transit network maps showing main cycling routes and facilities, availability of bike rental locations in travel planners, integrated offering of bike rental or bike lease as part of transit subscriptions, integrated ticketing of bike parking facilities or bike rental with transit tickets.

15 Other key themes: Cycling in the city, A high-quality cycling network, Stimulate bicycle use and cycling initiatives, Support for and knowledge about cycling.

16 <https://forumviesmobiles.org/en/project/15536/100-metro-networks-serve-whole-france>

Mobility

For the Mobile Lives Forum, mobility is understood as the process of how individuals travel across distances in order to deploy through time and space the activities that make up their lifestyles. These travel practices are embedded in socio-technical systems, produced by transport and communication industries and techniques, and by normative discourses on these practices, with considerable social, environmental and spatial impacts.

En savoir plus x

Lifestyle

A lifestyle is a composition of daily activities and experiences that give sense and meaning to the life of a person or a group in time and space.

En savoir plus x

Active Mobility

Active mobility refers to all forms of travel that require human energy (i.e. non-motor) and the physical effort of the person moving. Active mobility occurs via modes themselves referred to as "active," namely walking and cycling.

En savoir plus x

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1 <http://creativecommons.org/licenses/by-nc-sa/3.0/fr/>

2 <http://forumviesmobiles.org>

3 <http://creativecommons.org/licenses/by-nc-sa/3.0/fr/>

4 http://fr.fvm.localhost/modal_forms/nojs/contact