

Cycling in two cities

A mobility sustainability assessment of Amsterdam and Milan

A tale of cycling in two cities

(Full version)

By Muhammad Wisal Khattak (PhD student at Ghent University, Belgium, March 2019)

Cycling and walking are sustainable forms of mobility. Because of increasing concerns about environment, congestion, road safety and public health, cities are constantly seeking to adjust their existing transport systems in favor of these modes. Nevertheless, only few cities have succeeded. It is not uncommon to see that, although policies exist, only few cities have achieved higher shares of cycling and walking in everyday trips. A big question arises “What makes the difference for some cities to succeed in having higher degrees of walking and cycling trips than the others?”. To find an answer, it is important to have a closer look at a city with successful cycling culture like, Amsterdam-the Netherlands, and a city with a relatively less successful cycling like, Milan-Italy.



Amsterdam

Cycling was a primary mode of transport during the first half of the 20th century in Amsterdam. Until the mid-1950s, about 75% of trips were made by bicycles. The period between 1955-1970, however, saw a decline. Suburbanization, dependence on automobiles and higher car ownership were among the contributing factors. The attitude of people towards a transport modal choice, however, changed in the late 1960s and early 1970s. Bicycle advocates and environmentalists educate people about pollution, congestions and unsafe road conditions caused by automobiles. Amsterdam’s decision-makers considered two solutions to take care of problems related to vehicles; first, to adapt the city development pattern and infrastructure according to automobiles, second, to promote cycling, walking, public transport and limit car use in the city. The city council chose the latter. In 1978, cycling became an integral part of transport policy of the newly elected city council that set a base for the successful cycling culture of Amsterdam.

Amsterdam's current transport policy has a special focus on the non-motorized modes (walking and cycling), although its general objective is to make the accessibility easy for all modes of transport. Amsterdam pay attention to safety of the cyclists through strict traffic laws. For instance, a car driver when hits a cyclist will be responsible for a crash unless the cyclist deliberately disobeys the law. Also, the law advice the car drivers to take extra care when encountering elderly. Interestingly, bicycle helmet is not a part of safety improving efforts in the law. People perceive helmet as unattractive, and less comfortable. Bicycle planners see helmets as unnecessary that may discourage cycling.



Amsterdam has a strict car restraining policy in the city center. Measures to restrain cars include, one-way only car streets, pedestrian and cyclist only streets, and limited but very expensive car parking in the city center. On the other hand, to encourage more cycling, the city road network has an enormous supply of bicycle lanes and paths, and parking facilities at the train stations, metro station and public transport terminals. Amsterdam stands as an example for the rest for the world with regards to a beautiful integration of automobile and bicycle use. "Park and Bike" program allow motorists to park their vehicles at the outlying parts of the city before they take bicycle for the city center. Park and Bike was introduced to meet the shortage of parking spaces for cars and limited coverage of public transport outside city. Population segment, such as the immigrants and their children, do not cycle frequently. Amsterdam has targeted them through special promotion schemes. Schools in the Amsterdam provide bicycle training to the children and introduced them to basic traffic safety rule.

Amsterdam also offers a list of innovative solutions to alleviate an increasing pressure on cycling network. Transport department and mobility office are shifting their focus from manual or physical based models (hard measures) for regulating traffic to more behavior based approaches (soft measures).

Car free streets: Streets in Amsterdam have been (re-)designed to omit the cars completely. Although, this practice is not very common, but it is getting trendy. A good example is that of Plantage Middenlaan. This street once had a tram track, car lane, a bicycle path and a sidewalk in each direction. Now, after the redesign, there are no car lanes. However, the tram tracks, the bicycle paths and the sidewalks are still there.

All streets are bike streets: Almost every street in Amsterdam has a bicycle lane or path. Contrary to many cities, street network map in Amsterdam is virtually the same as the bicycle network. There is a better chance that one may need a specialized map if you drive a car in Amsterdam.

Turn off all the traffic lights: Amsterdam made a rather unconventional move to manage traffic (bicycles, vehicles, trams, pedestrians) in the famous junction at Alexanderplein in 2016. The city run an experiment by removing all the safety barriers and turn off all the traffic lights and let the traffic sort itself out. The results of the trial showed success. Switching off traffic lights and removal of safety barriers caused the users to be more careful while at the junction. This also improved the traffic flow.

Intense Traffic Calming techniques

Amsterdam is not reluctant to use intense traffic calming techniques—textured pavement, speed bumps and speed tables, narrow streets, and raised intersections—to slow down the motorized traffic. One such device is a speed table that helps improve cyclist safety and flow. Speed tables are raised portion of the roads, usually flat and longer than the regular speed humps, with ramps on either side. When vehicle approaches the speed table, it is forced to slow down .

Milan

About four decades ago (in 1980), the municipality of Milan prepared a plan for the development of bicycle network. Later, in 1995, a work group was created to include the construction of bicycle paths in urban transport plan(the PUT 95/97). In 2002, the transport office of Milan suggested the municipality to establish a specialized office for cycling and to provide, within the city transport policy, a strategy to promote bicycles as real means of transport (Scalia in: ANPA, 2002, p. 69). This result in a strategic action plan for bicycle promotion in Milan. A bicycle sharing service, BikeMi, was among the first outcomes.

BikeMI

Milan introduced BikeMi in 2006 as a part of sustainable mobility package. BikeMi allow those with subscription to take a rental bike parked at some location in the city, and then leave it at some other location after a trip. Municipality of Milan asked Politecnico de Milano to carry a study to define the important parameters, including the ideal number of bicycle stations, the coverage and distribution of station, business model of the scheme and even the shape of bicycles. The study suggested to use about 5000 bicycle units that will serve 300 bicycle sharing stations across Milan. Over the years, use of BikeMi has witnessed a steady growth. For example, the number of annual subscribers increased from only 580 in 2009 to 6913 in 2012 (ATM, 2013).

Policy goals in Milan

Milan has made several efforts to transform into a bicycle friendly city in the recent years. The key initiatives to promote cycling include (a) developing extensive cycling infrastructure ; bicycle lanes, bicycle paths, under- and over-passes, traffic calming devices on bicycle streets, new rules for bicycle traffic (b) creating guarded bicycle parking areas (c) offering a dedicated service for the promotion of cycling (d) improving bicycle accessibility from the metropolitan area by introducing a strategic plan called MiBici (e) Promote cycling tourism. Also, Milan transport department has initiated to redefine the road system from a network originally designed for automobiles to a multifunctional network that can accommodate other modes (public transit, pedestrians and cyclists) (Municipality of Milan, 2013).

Other interventions cover introducing limited traffic zones and/or limited speed zones in residential areas, realization of pedestrian zones and introducing regulatory measures to improve safety on the streets.

Coordination between bicycles and public transport is addressed by; (a). bicycle on the train and metro, (b). park and ride scheme in/near the stations and (c). rental bike schemes near the train stations. Because of the efforts made by FIAB (the Italian Bike's Friends Federation) and others cyclist associations, citizens can take bicycle on trains and in city's underground metro services on weekends, in the evenings and outside peak hours.

Cycling problems in Milan

Urban Sprawl: Milan has experienced a strong urban sprawl. Urban sprawl results in higher environmental impact of mobility (Travisi, Camagni, & Nijkamp, 2006) since transport related energy consumption increases significantly. People tend to use energy inefficient modes (automobiles) to travel as it become the only practical alternative (UE, 2006, p. 30).

Infrastructure issues: The quality of bicycle routes in Milan is not very good because of low priority attached to cycling in the past. Bicycle paths are less attractive, badly maintained and difficult to use. They are constructed with no technical considerations. In some areas, bicycle paths are even virtually absent. Bicycle paths, even if present, are mostly fragmented into individual segments and are not useful.

Absence of monitoring cycling traffic system: Milan have no system to gauge whether and to what extent the actions taken by the city and other cycling agencies are increasing bicycle share. The voluntary surveys by the Italian Bicycle Friends Federation (FIAB Onlus) is the only existing source to check cycling initiatives. The FIAB survey, however, has a limited spatial coverage and is conducted only for one day in a year (Drufuca, 2011).

Attitudes and Motivations Issues: Reasons for not using bicycle as a preferred mode of transport by the citizen of Milan revealed at "The bicycles mobility in urban contexts Conference" in 2000 by ANPA (National Agency for the Protection of the Environment) and the FIAB (Italian Federation of Bike's friends) include:

- Safety: The fear of involving in a crash and impression of violence
- Bicycle: a cause of traffic barrier effect
- Effort and energy required: The fatigue, the sweat, the pain and difficulty of breathing
- Incompatibility with certain weather conditions
- Exposition to other vehicles emissions
- Public image: Not a convenient and cheap mode

This gives an insight in understanding cyclists' concerns and communicate carefully the promotion schemes and bicycle safety programs.

Lack of national, regional and local bicycle policies: The number of bicycle users in Milan is not increasing due to the lack of concrete national, regional and local bicycle policies. The gap between the actual and potential demand of bicyclists is huge.

Comparison of Amsterdam and Milan

An in-depth comparison cycling situation in Milan and Amsterdam is as follow:

Distances, development forms and modes of transports utilized

Is the distance to cover by bicycle affect the number of cyclists?

The distance to cover is important indicator of the choice to or not to use a bicycle for journeys. Factors like, bicycle lanes, traffic calming devices, better public transportation, bicycle traffic lights

and bicycle parking facilities, etc. enhance the qualitative appeal of the distance to be travelled. Amsterdam provides such an appeal for the cyclists while Milan needs to make a progress.

Does the development form of cities affect the choice of bicycle for transport?

Amsterdam is densely developed. Mixed land use makes the trip length short. This implies that bicycle can be used for virtually all trip purposes. In Milan, residential, shopping and business districts are located far from one another due to its strong urban sprawl. The city has grown large but no efficient bike system is in place.

What is the popular mode of transport in both urban contexts?

Bicycle is the most popular means of transport in Amsterdam. People frequently use bicycle for journeys below 7.5km and 7.5-15km. In 2005, the city of Amsterdam reported a cycling share of 37% of all journeys (City of Amsterdam, 2007). On the other hand, in Milan people use car frequently for their journeys, even for short trips, between 0-3km.

Are the different means of transports connected well in two cities and do they allow the bikes use also for long distances?

Amsterdam bicycle network is well connected to the public transport by means of bicycle parking spaces at the train stations, bus stops, all major attractions and activity centers. Bicycle transport is normally allowed on trains.

Milan, however, lacks a highly integrated transport system despite efforts being made recently. It is not easy to use bicycles in combination with public transport services except only few "green trains" and special metro wagons.

Urban transports' plans and statute bike plans

In both cities bike plan, which one's infrastructural strategy effectively helps to increase the actual number of the urban cyclists?

Amsterdam's transport policy is centered around non-motorized modes (walking and cycling). The result is a very appealing main bicycle network that encourages bicycle use. On the contrary, Milan has recently started developing a proper bicycle policy and few infrastructural services for the cyclists.



Lessons learnt from the case studies of Amsterdam and Milan

Amsterdam offers a set of already tested measures to succeed in obtaining higher levels of cycling in overall modal split. The concrete provisions for bicycles in the urban mobility plan, that ensure the implementation of multi-faceted, mutually reinforcing policies, focused on more pro-bike measures while at the same time restrictive policies for the cars in city center, summarizes the success story of cycling in Amsterdam. Bicycle and pedestrian friendly streets, a range of traffic calming measures, better integration of bicycle infrastructure and public transport, reaching to and training of the immigrants, comprehensive traffic education and cycling training, and a wide range of promotion schemes are key to the success of cycling in Amsterdam.

Milan also offers some lessons to learn about cycling. Milan case shows that the lack of adequate infrastructure is catastrophic for increasing bicycle shares. The infrastructure variable has happened to have a strong impact on people's decision to use bicycle. Milan also suggests special attention should be given to spending on facilities. Focus on building bicycle transport arrangements on public transport, parking facilities at stations and transport terminals is important. Also, a coherence between the demand (bicycle users) and the supply (policy makers, planners, politicians) side play a vital role in enhancing cycling. A well-defined set of rules that recognize bicycle as a full-fledged means of transport is crucial. Without second opinion, Amsterdam's cycling is exemplary for Milan and other cities showing that bicycle is equally a good mode transport for every day trips.