

## 7. THE ITALIAN CASE STUDY

### 7.1 INTRODUCTION

In recent years in Italy is spreading a strong attention of local authorities to the mobility cycle paths, thanks to the foreign countries lessons (DruFuca, 2008-09, p.2).

Firstly, it is important to start the Italian transport policies presentation by saying that in Italy there is no national cycling strategy, there is only a policy on safety.

Within the various tasks that the National Agency for the Protection of the Environment (ANPA) must fulfil, in order to preserve and enhance the natural heritage, one is to promote sustainable development integrated within the environmental protection and the needs of welfare and social equity. The Agency priority is to inform and educate the population to the intermodality travel choice, in order to promote the urban use of public transport and environmentally sustainable means, the best of which is the bicycle (ANPA, the National Agency for the Protection of the Environment, 2002 p.1).

In the legislative field, important law decrees of the Environment Ministry have been made, such as the promotion of a sustainable mobility in urban areas. Further developments should be made in this direction. The ANPA stated that in the Italian cities the use of the car should be reduced to ensure a sustainable mobility and accessibility to the cities centres, where a good mobility is a need.

The use of the car, in the city, is certainly less efficient than other modes of transport and the bicycle is one of the most advantageous one for the short distances (Riccardi in: ANPA, 2002 p.1).

The ANPA (National Agency for the Protection of the Environment) and FIAB (Italian Federation of Bicycle's friends,), found that the motorvehicles traffic not only causes air pollution, but it is often a major source of stress and noise in the Italian cities (Riccardi in: ANPA, 2002 p.1). This argument is linked to the Cohen et al., 2002, Novaco, Kliever&Broquet, 1991 findings that travel stress can lead to emotional and behavioral deficits on arriving home or at work.

Cycling is certainly a means that suits well for the few flat Italian urban centres, like Milan's one. But mostly, in the urban contexts, cycling is perceived as a dangerous mean of transport because of the traffic and the exposure to harmful gases. It is also true that you can overcome these obstacles thanks to good intermodal policies, through: the traffic controll, the creation of separated infrastructures for cyclists and the treating of the transport planning in order to stabilise, or even reduce, the individual use of car, as the experiences of some Italian cities (like Ferrara and Modena) and of many European cities show.

Bicycle policy are needed to create the conditions to change people car oriented habits. Moreover it is important to make people conscious about the health's benefits and the quality of life, linked to a greater mobility and cities' accessibility in a city friendly way (Riccardi in: ANPA, 2002, p. 3).

Every city should choose which mobility priorities and measures to have, depending on its characteristics and resources, by looking at the best policies practices. This concept underlines the main comparative research goal, for a better cycling development in the inner city of Milan.

As Luigi Riccardi, the FIAB President (Italian Federation of Bicycle's friends,) stated, the Italian urban mobility, entrusted mostly to private motorization, is in deep and irreversible crisis (Riccardi in: ANPA, 2002, p. 3).

The FIAB and ANPA Conference 2000, stated that the Italians, should think seriously at the sustainable transports alternatives to ensure to the cities a good mobility. One of these alternatives, certainly useful in the short term, is the bicycle. The objective of stimulating the use of the bicycle, in the inner cities centre, help to improve the traffic and the urban environmental quality.

For this reason it should be pursued with much greater conviction than the one that occurs in Italy, by both: the local public administrators and the higher levels of regional and national governments, within the framework of appropriate transport policies. In other words, a certain urban context could, with appropriate measures, raise the share of daily bicycle journeys from 3 to 10% . It would be certainly positive for those who adopt the bicycle as a daily means of transport and also for the users of public transports and for the car users (Riccardi in: ANPA, 2002, p.3).

Contrary to what some policy-makers think, there is no conflict of interests between drivers and cyclists: give way to bikes, in the current situation of some Italian cities, for example Milan, is a contribution towards a more rational use of means of transport. There is no doubt that, over short distances, the bicycle is the most convenient mean of transport. If transport policy makers and the local authorities think that 40% of movements in urban areas are under 4 or 5 kilometres, than the use of the bicycle is the most appropriate. For this reason, they should encourage the integration of the bike within the public transports policy (Riccardi in: ANPA, 2002, p.3).

Urban mobility specific interventions are needed from both the supply and the demand side.

Transportation strategies should ensure, to the cyclists, safety and comfort with measures of traffic timing necessary also to reduce the traffic congestion.

Secondly infrastructural bike's facilities are needed, such as: slopes lanes and bicycle paths, subways and walkways, bicycles traffic lights, parking, deposits and centres of bike's rent and services.

Moreover, it should be promoted the intermodality transport strategy, related to the use of the bikes and the public means, to achieve concrete results in terms of an increased bicycles use.

Italy should have comprehensive interventions and measures, coordinated by the various government's levels: the state, the regions and the local authorities. For the design and management of a specific bike's policy local offices have to be made, like in the Netherlands context (Riccardi in: ANPA, 2002, p.4).

The evaluation provided from ANPA on the air quality data, relating to the first sunday of Milan city centre motorvehicles closure, showed a significant reduction of pollutants emitted by private vehicles, such as carbon monoxide and benzene.

Within Milan polluted urban context, a mean of transport not pollutant and perfectly sustainable, like the bicycle, must be promoted.

In Italy the idea of the bicycle as a mean of transport is still very little widespread and not very common in the citizens habits. ANPA promotes cycling starting from environmental trainings and education class, in order to develop the two wheels culture in young people attitudes.

At the same time, it must be developed a targered plan, within the built areas, land regulations and local roads policy makers and the public transports managers (Santonico in: ANPA, 2002, p.8).

## 7.2 THE NATIONAL URBAN TRAFFIC PLANS

With the institution of the national Urban Traffic Plans is expressed the desire to coordinate the road works and the traffic management in order to reach six classes of objectives:

1. Mobility improvement;
2. Improvement of road safety;
3. Reduction of pollution and noise;
4. Energy savings;
5. A partnership between the urban planners and the transport managers;
6. The respect of environment's values (Marescotti in: ANPA, 2002, p.24).

These objectives, are intended to develop a particular attention at the safeguarding of the weaker road users and to put in safety the people from axles of crossing and of the main inner roads. Moreover, they should moderate the vehicular traffic of the central and residential areas by using innovative and flexible plans and infrastructures for the public transport systems with innovative infrastructural provisions to rationalize the use of resources and reduce the cost of transports.

The local authorities do not only have the obligation to adopt the traffic plan, they also must be able to demonstrate its usefulness with measures for the continuous control of the results. In other words, the effectiveness of the plan must be measured, the traffic and its direct and indirect impacts monitored.

The cycle itineraries of the Urban Traffic Plan, must be analysed together with technical offices, in order to increase accessibility of the neighbouring areas, well linked to the urban centres, to strengthen the relations between the residential settlements and the services and offices districts, in order to give a real alternative against the car use.

In the Italian cities the urban mobility has to be improved with more safety rules and controls, both for pedestrians and cyclists and the urban transports interventions have to be made in a comprehensive way.

The concept of the roads hierarchy must be transferred also to the cycle mobility context. Urban planners strategies have to define operationally priorities and programs.

The bicycles network should be composed by three under-networks:

- a local network with urban lanes in the promiscuous long main roads for a local access to the residential and surroundings areas ;
- a main urban network with itineraries connected between urban centres and services areas;
- a network outside the city, with a municipal and intermunicipal character, dedicated to recreational routes, (Marescotti in: ANPA, 2002, p.p. 24-25).

One final issue concerning the Urban Traffic Plan is the Regulation Road document that can play a significant role for the urban quality and for the implementation of the bicycles' network path. The Regulation Road document should prescribe some rules, for all the municipalities, of roads construction and maintenance in order to modify the roads geometries and obtain new projects.

Nine years after the creation of the national Urban Traffic Plan introduced by the Road Code, there should be in Italy an implementation of works that regulate the traffic with the objective of improving the urban environment and reduce the pollution. Italy should have now consolidated tools.

Only through an integrated planning and programming it is possible to build a network of national routes, able to offer a real contribution to the use of the two wheels means of transport that is able to change the modal transport demand (Marescotti in: ANPA, 2002, p.p. 24-25).

### 7.3 THE CYCLE URBAN TRAFFIC PLANS AND THE EXAMPLE OF MILAN

The cycle urban mobility should be linked to a good urban life quality and to a sustainable urban development, respectful of the environment, of the population and of the next generations.

To ensure that the cyclists' mobility is not an utopia, it is necessary that Italy builds a new public transport strategy and new roads' quality policies.

That something is changing in the Italian urban context it is clear from what is happening in the city of Milan, which is daily invaded by almost 900,000 entry cars. Milan is the first big Italian city to experiment explicit urban transport policies without a plan: after two versions of the General Urban Traffic Plan (the first of 1995 and the second in the 1999, characterized by a general approaches) it was decided to seek a response to traffic problems in detailed urban traffic plans. These urban traffic plans are linked to specific requests of a better urban mobility. For the first time, the Municipality of Milan tried to overcome the general plan for drawing up specific plans. These detailed plans not only have to define and resolve the urban cycling suitability, by providing new road sections and change the critical roads crossing, but also they have to regulate the demand side needs.

The urban suitability for cycling is, of course, very suitable in small and medium-sized town, but the sign of a radical cultural transformation should come from the big cities, like Milan, when it will be registered the record of: a significant reversed use of automobiles, the reduction of pollutants emissions and the reduction of traffic impacts on health and on the urban environment (Marescotti in: ANPA, 2002, p.p 27-28).

To offer a good alternative in terms of sustainable mobility it is necessary that the use of the bike fits in with the public transport urban system. This applies especially to: trains, subways, tram, that are independent of the ordinary roads and may provide attractive benefits in terms of time consuming. In Milan city these public transports are not sufficient to cover easily entire journeys, especially when the points of departure or the final destinations are quite far apart from the station or the bus stop. For this reason, the bicycle may be able to effectively fill the missing link in the chain of transfers, particularly regarding the distances between the 500 meters and the 5 kilometres, For this purpose the two wheels can be the best means.

Less performing is the possible synergy of bikes and bus, both for the characteristics of the bus vehicle, which is not likely designed to transport many bikes and for its speed that, usually in urban areas, is lower than the one of a good cyclist (Ferrari in: ANPA, 2002, p.55).

#### 7.4 TRANSPORTS CONNECTED TO EACH OTHER (INTERMODALITY VARIABLE)

Regarding the national Italian level of integration between bikes and trains there are three possible synergies: bicycle on the train (or on metro), the park and ride in railway stations, the bike rent accessible near train stations.

On the one hand, the Italian State Railways company made efforts towards the cyclists costumers, in particular with the Regional Transport Department. The result was that important measures, such as the extension to all the "green trains" of the possibility of carrying the bicycle on the train have been developed. Thanks to these measures, there has been a considerable development of the bike+train services, especially during weekends, avoiding the risk of conflicts with the habitual costumers, since they are excluded from the class of "green trains".

In some cities, as in Milan, thanks to pressure of the FIAB (the Italian Bike's Friends Federation), with the support of others cycle associations, these intermodal services have been extended for some years, also in the city's underground lines, always outside of the rush hours, on weekends and in the evenings, without creating any problems to other costumers.

These comprehensive mobility strategies have supported and enhanced the national cycling travel choice combined with railways (Ferrari in: ANPA, 2002, p.55).

Despite these encouraging initiatives, difficulties arised from some strategic choices made by the Italian State Railways company, in order to reduce the costs of these services. Because of the high costs, luggage bicycle vans and deposits were removed from the trains, therefore the the bike's transportation on the trains became problematic.

Only recently a certain willingness, towards the cyclists infrastructural needs, has been expressed by the Italian State Railways.

Moreover, the costs cutting brought a staff reduction in all Italian train stations so many inner stations guarded bikes parks had to close. Recently, fortunately, there is a reversal trend, since the behave of parking the bike at the train stations spread thanks to the bike's time saving and the zero costs to reach the train and underground station (Ferrari in: ANPA, 2002, p.56).

#### 7.5 THE DISTANCES AND ITINERARY VARIABLES IN THE URBAN SPRAWL

Mobility is crucial for the functioning of cities. For this reason it is a great relevance matter in the urban policies. Historically in Italy, network planning of the transport is a fundamental sector of the urban planning, but the last generation of plans have faced new problems due to the increasing complexity of urban systems, particularly the larger.

To plan the urban mobility means to face up issues such as the real usability of the different transport means, the coherence between transport and urban environments, the re-appropriation of public space by citizens, the mobility of the disabled: each of these issues must be faced both from a technical point of view and in relation to quality and sustainability objectives of the urban organization. This is essential for to increase the urban efficiency and livability, (TeMA, vol.3 n.1, 2010 urban planning and mobility).

In the Nineties, mainly due to the spreading of the sustainability paradigm, the awareness of the unsustainability of a mobility largely relied upon private cars and of the numerous and generally undesirable effects due to the relation between mobility choices and sprawling of the Italian cities largely increases (Galderisi, 2009, p.1).

Sprawl has accelerated in response to improved transportation links and enhanced personal mobility. This has made it possible either to live increasingly farther away from city centres, while retaining all the advantages of a city location, or enabled people to live in one city and work in another. Overall, evidence suggests that where unplanned, decentralised development dominates, sprawl will occur in a mechanistic way, this is the case of Italian cities uncontrolled growth. Conversely, where growth around the periphery of the city is coordinated by strong urban policy, more compact forms of urban development can be secured, (UE, 2006, p.p. 7-8).

In northern Italy, small and medium sized cities are also special cases as the whole region has experienced very strong urban sprawl in the past decades and the process continues (UE, 2006, p. 15).

Some recent tentative studies on the metropolitan area of Milan have empirically explored whether different patterns of urban expansion generate different levels of land use and heterogeneous impacts of urban mobility. The results confirmed the expectation that a higher environmental impact of mobility may result from more extensive and sprawling urban development, (Travisi, Camagni, Nijkamp, 2006, p.3).

Transport related energy consumption in cities depends on a variety of factors including the nature of the rail and road networks, the extent of the development of mass transportation systems, and the modal split between public and private transport. There is a significant increase in travel related energy consumption as densities fall. Essentially, the Italian sprawling cities, like Milan, are dominated by relatively energy inefficient car use, as the car is frequently the only practical alternative to more energy efficient, but typically inadequate, relatively and increasingly expensive public transportation systems (UE, 2006, p. 30).

In conclusion, urban sprawl doesn't allow to follow a sustainable life style and therefore to reach daily destinations by bikes. From an economic perspective urban sprawl is at the very least a more costly form of urban development due to:

- increased household spending on commuting from home to work over longer and longer distances;
- the cost to business of the congestion in sprawled urban areas with inefficient transportation systems;
- the additional costs of the extension of urban infrastructures including utilities and related services, across the urban region.

Urban sprawl inhibits the development of public transport and solutions based on the development of mass transportation systems, and the provision of alternative choices in transportation that are essential to ensure the efficient working of urban environments (UE, 2006, p.36).

Since the environmental costs of mobility are determined, among other things, by the spatial organization of the urban system one of the argument called into question, in particular, is that a dispersed and low-density city tends to be more dependent upon automobile use and turns out to be less sustainable.

Urban form influences individual travel behaviour and, as a consequence, the pattern of mobility within a city through several channels. Firstly, low-density areas are more difficult to be reached and served efficiently by a pervasive system of public transportation, mainly because of the lack of scale economies. Secondly, the demand for public transportation tends to be lower in a dispersed city, especially where the distance to walk from home to public transport stations is so long that cars and motorbikes turn out to be more competitive. Besides, public means of transport are on average more time-consuming than private ones, especially in low-density areas<sup>13</sup>. In addition, the increase in average individual incomes has raised the opportunity cost of time-consuming (public) means of transport.

Urban dispersion, therefore, provides incentives to private means of transport use, through both a reduction of the demand for and a worsening of the supply conditions of public transport services (Cirilli, Veneri, 2009, p.6-7).

It has to be said that the role of compactness – as measured by residential density – is by no means unambiguous. On the one hand, the direct effect of high density could be a reduction in the distance travelled across the city (Giuliano, in: Cirilli, Veneri, 2008, p.7), a better environment for walking, cycling and transit service as well as lower oil consumption (Newman and Kenworthy, in: Cirilli, Veneri, 2009, p.7). In addition, high population density is positively correlated with the use of public means of transport (Camagni et al., in: Cirilli, Veneri, 2008, p.7).

It has been found that the comparison between the Italian metropolitan areas – for simplicity, those urban systems with more than 400,000 inhabitants in 2001 – suggests that the shares of commuters that use public means of transport are higher in Genoa and Milan (shares above 20%), followed by Rome, Venice, Naples and Turin. Indeed, correlation between population and the share of public transport users is positive and rather high, indicating that the larger the city, the more developed the public transport system. Larger cities are more congested and concentrate a higher demand for public transportation, which allows the provision of efficient (and more diversified) services, thanks to an adequate exploitation of the scale economies (Cirilli, Veneri, 2009, p.p. 14-15).

Urban and transports planners should be aware to these developments and should think and operate in a more comprehensive and sustainable way, less market-oriented.

## 7.6 NATIONAL TRANSPORTS OVERALL CONCLUSIONS

The national urban mobility is one of the determinant policy element for the economical grow of a country. The objectives are individuated through integrated programs for the realisation of public transport infrastructures, parking lots, roads and innovative technologies application. In relation with the Italian urban planning, the PUM (Urban Mobility Plan) starts a process of integrated planning between the local territory asset and the transport system, being so a system project, with the final aim of increasing the urban quality of life (ama-mi.it). There is still a lot of work to do in collaboration with urban planners, public and private transportation managers in order to set the basis for a partnership that can offer to Italian citizens good public transportation accessibility, intermodality and sustainable choices.

## 8. THE MILAN INNER CITY CASE STUDY

### 8.1 THE LOCAL LEVEL POLICY

The upgrade of the Milan urban mobility is indispensable to make more efficient the national and international relationships of this area, but at the same time the upgrade of the relationships among the main sites of this “polycentric city” is an essential condition for an increase in mobility and urban quality of the central area. The Milan road ring and the railway network are both overcrowded and congested and in such a condition they deeply penalise the whole area. The removal of this critical element will certainly increase the quality of the Milan transport system, giving the same time more efficiency to the regional system, with positive implications within the nation transport system framework. The fundamental strategies of the PUM, are oriented to a redesign of the urban area, either for the city and for the polycentric set of settlements – where Milan represents the main site for services and functions of higher level, which should be equally accessible to all the Region’s citizens – and to the European role of Milan, which puts the city in contact with the rest of the world for cultural, economical and political relationships. The PUM starts an integrated planning process within the territory asset and the transport system and is a system project finalised to the amelioration of the urban quality.

## 8.2 OBJECTIVES OF THE PUM

### 1) INCREASE IN TRANSPORT SAFETY

A primary objective of the Plan (PUM) is the increase in road (and other modes) safety, according to the safety road programme of the European Commission, subscribed by Italy. The increase is due to a reorganisation of the urban road circulation, with the creation of pedestrian and bicycle areas and the separation of the different motorised traffic flows and with the users shift towards safer transport systems, i.e. from the individual to the collective transport system.

### 2) QUALITY INCREASE OF THE LOCAL TRANSPORT SERVICES

The increase in use of the public transport system should not depend upon the disincentive of the other modes of transport, but on the increase in quality and service offer. Basic elements for the public transport increase are the travel and wait times reduction, the integration among the different modes of transport (considering the whole transport system as a multimodal network), the strategic positioning of interchange stations in the network, the extension of the integrated fare system (including the integration between public transport fares and the individual mode costs), the increase in comfort of the user at the stops/stations and on board (vehicles). The whole strategy of the public transport system is based on the main railway, underground and tramway networks. This main system is integrated with the urban network and with the adduction network from the outer towns nearby Milan. The sustainable development of Milan can be performed with a direct strategy of strengthening of the railway network, which has historically consolidated the urban centres, realising a “metropolitan” service, cadenced, frequent, diffused and affordable, extended to the whole day. Even if the matter is not strictly competence of the Milan Municipality, the programming activity is performed with Province, Region, Transport Ministry, Environment Ministry, Italian railway (Trenitalia) and Ferrovie Nord Milano. The resolution of the critical aspects of the railway Milan node is a problem which has not only local, but also regional and national interest, in order to guarantee the upgrade of the European railway accessibility, the strengthening of the connexions to the airport system and of the regional railway and metropolitan service.

### 3) TECHNOLOGICAL INNOVATION

The management of the public and private mobility provide interventions which rationalise the movements distribution, obviating to the low knowledge of the real conditions of circulation and parking lots. The increase of the capacity of the road and transport networks, the control of the demand development, the improvement in circulation conditions, the realisation of integrated and optimised management systems, the real time traffic information, the activation of assisted navigation and fleet management make part of this objective (ama-mi.it).

## 8.3 THE PROMOTION OF BIKE'S RENTAL SERVICES WITHOUT A BIKE'S NETWORK

In 1980 the Milan's Municipality has prepared a specific plan for the development of a cycle network. In July 1995 it has been established a work group for the creation of bicycles paths in the city. The result was the Urban Transport Plan: the PUT 95/97, which provided the implementation of 70 Km of bike path in two years. This plan, in reality, developed only certain sections of the urban cycle network, covering in total only 24 km.

The Urban Transport Plan creation suggested, to the municipal administration, to establish a specific office for the cycle mobility and the creation of a plan for improving the quality of Milan mobility, by promoting bicycles as a real alternative means of urban transport (Scalia in: ANPA, 2002, p. 69). The Province of Milan has launched the strategic action plan to promote and develop the use of the two-wheels in Milan, with MiBike service.

The service allows, to those who possess a magnetic card available, to take the municipal rental bikes, parked in some strategic points of the city center, like in Piazza del Duomo, and then you can leave them in others specified parts of the city.

The cost is absolutely convenient: few euro for a couple of hours.

The spread of the bike's use, in the urban traffic, generates many positive effects. Speed of movement - the average speed of a car in town is less than 5 mph – zero cost of transport and flexibility. Especially bikes reduce the CO2 emissions to zero. They are certainly the most effective means of urban transports, together with public transport, for a sustainable and efficient urban mobility. Even the noise pollution, one of the most disturbing and stressing problem of Milan, with the use of bicycles, can be reduced.

The major problem related to the bike use and promotion is that in Milan, bike inner city paths, do not exist. There are sometimes individual, random bike paths sections which are not linked together in continuity, therefore they are useless, (Fabris, 2009, Repubblica newspaper article).

A Municipal plan, for the next year, is aiming to connect the random bike network, by extending bike's paths from the current 1,000 km to nearly 3300 km. Creating the conditions for good urban bikes planning, strategies and policies is an effective instrument for enhancing the daily travel between home and work and study places and to reach locations major public functions, public transport nodes, parks. It is thus not only to make cycling safe, efficient network with a complete and continues to encourage mobility between municipalities, but also services, support and concrete action to stimulate the combination of cycling and public transport operator. With appropriate support structures such as points of hospitality and assistance for bicycles, where shelter, repair or rent.

## MILAN'S INNER CITY BIKES PATHS AND RENTAL BIKES STATION



Fig 1: Milan inner city bike-sharing stations  
Source: (FIAB, Cilobby Onlus, 2009, p.3).

The Municipality of Milan was not interested on developing the urban cycle mobility (FIAB, 2008). It started to be involved on it with the BikeMi initiative in 2008. BikeMi is the strategical bike sharing service provided by the Municipality of Milan. Designed to promote user mobility, it is not just a simple bike rental service but a real public bicycle transport system to be used for short trips supplemented by ATM (Milan's Transport Agency) traditional transport vehicles. It is a project that see BikeMi stations located in strategic points all over the city, starting downtown: train stations and universities, hospitals and tourist attractions, underground stations, administrative offices, malls and parking lots. This will allow all registered users to pick up a bike, ride it and leave it at the station closest to their destination (BikeMi website page, 2008).

The BikeMi success raises questions whether and to what extent the actions undertaken up to now are finally increasing the use of bicycles in the city context. Unfortunately Milan does not have a monitoring cycling traffic system.

The only existing sources are the voluntary surveys conducted by the FIAB Onlus (the Italian Bicycle Friends Federation), which however does not allow to operate in the whole city and have the limits of a single day survey (Druluca, 2009, p.2).

The cycles traffic presents certain characteristics that make it particularly difficult to measure. In fact, it belongs to a little universe (in Italy), because the presence of a cyclist is, at least for now, a unique event, for this reason its observation samples are not reliable even if repeated on different days. Moreover the use of the bike is a phenomenon subjected to considerable fluctuations: the number of cyclists is particularly sensitive to weather conditions-averages: cold, rain and, more generally, seasonal changes strongly influence the observations. It is also a phenomenon variable in space: the density of cyclists varies considerably depending of the urban geography: it is more intense near the services, facilities and shopping provisions areas, near schools, parks and, more in general, it moves from the periphery to the centre. Therefore it has been developed an alternative measurement method which exploits the daily commuters repeated movements from home to work, which may enable such estimates with reasonable accuracy.

#### 8.4 THE URBAN INFRASTRUCTURAL BIKE'S PROVISIONS

In Milan, the general shortage of bike infrastructure, create great problems to cyclists. Even the trees become precious places of parking rivalry. In the city center it is very trivial to park the bike. In other cases it happens that the bikes sheds are located where in useless and uncovered parts of the city, or they are unsuitable to reach for the cyclists. The bike sheds should be spread throughout all the city, in all the main traffic roads, in front of shops, offices, parks and in the public spaces such as universities, schools and supermarkets.

To improve Milan cycling, the Municipality should plan and build more cycle lanes and more efficient and pro bikes public transports (Veronesi in: Costanza De Luca, 2010).

In Milan, the network path is not renovated, so it is not in good and safe conditions for the two wheelers. It is increasingly difficult to travel in the city center by bike, primarily because bike's lanes are bad managed and old, so they are full of halls and trees roots underneath them. Secondly, there are no official maps updated that should show where is the bike path itinerary. Mostly there is even no a bike sign or drawing on the road to indicate the route for cyclists.

For these lacks of infrastructural bike's provisions, most of the brave Milan's cyclists in Milan have the only possibility to ride in the middle of the road, in the motorvehicles traffic, so they prefer this quickest but unsafe choice, rather than using the dangerous and disconnected rare cycle routes (Ciclobby article journal n.3, 2009, p.1-2).

This bad situation is a typical example of the lack of partnership and shared visions between the demand side (bike users) needs and the supply points of view and policy hierarchy.

#### 8.5 ATTITUDES AND MOTIVATIONS VARIABLES

The ANPA (National Agency for the Protection of the Environment) and the FIAB (Italian Federation of Bike's friends) revealed at "The bicycles mobility in urban contexts Conference", (2000), that the major motives of the Milan's citizens for not using the bike or walking, for modal travel choices behavior in the city, are: firstly the fears of accidents and the impression of violence, than the traffic barrier effect, thirdly the fatigue, the sweat, the pain and the difficulty of breathing or the incompatibility with certain physical conditions and the exposition to the motorvehicles gas and at the last position there is the image effect meaning that is not convenient and it is so "cheap", for most of the people, to be seen with the bike instead of the car. It is therefore necessary to understand the concerns of cyclists and pedestrians and have good communicative skills for the cycling promotion and the actions towards a better safety program.

Therefore, in the national and urban contexts, the bicycle culture is not well integrated, supported and developed by both the supply and demand sides. More efforts have to be made in order to enhance practically and culturally an Italian urban bike mobility and reduce the strong car dependency attitude of travel behavior.

An important key factor to take into account, in the future surveys, is the current period of severe recession that, potentially, should encourage the Italian use of one of the cheapest modes of transport ever (Drufuca, 2009, p. 11).

#### 9. MILAN'S ACTUAL NUMBER OF CYCLISTS DATA (referred to the years 2008/2009 in the inner city centre of Milan).

The data were collected in eight inner city main locations including 12 stations. For the first we see an increase of about 3% compared to 2008's 8% compared to 2007. Going into detail is to consider the significant increase in stations and the declining cyclists number in the central Cesare Correnti and Beltrami and san Vittore areas.

#### CYCLISTS DATA REFERRED TO THE BIKE USE AND THE ITINERARY VARIABLE

| ORIGIN OF DEPARTURE | CENTER | PERIPHERY | TOTAL (2009) | TOTAL (2008) | DIFF. % 2009/2008 | TOTAL 2007 | DIFF. % 2009/2007 |
|---------------------|--------|-----------|--------------|--------------|-------------------|------------|-------------------|
| BASTIONS VENEZIA    | 1954   | 1227      | 3181         | 3069         | 3,60%             | 3111       | 2,30%             |
| BASTIONS VITTORIA   | 951    | 1378      | 2329         | 2129         | 9,40%             | 2081       | 11,90%            |
| BASTIONS ROMANA     | 905    | 766       | 1671         | 1669         | 0,10%             | 1554       | 7,50%             |
| CORRENTI            | 1060   | 959       | 2019         | 1569         | 28,70%            | 1560       | 29,40%            |
| SAN VITTORE         | 779    | 511       | 1290         | 1502         | -14,10%           | 1296       | -0,50%            |
| MAGENTA             | 819    | 800       | 1619         | 1648         | -1,80%            | 1376       | 17,70%            |
| BELTRAMI            | 1593   | 1362      | 2955         | 2685         | 10,10%            | 2974       | -0,60%            |
| TOTAL               | 8061   | 7003      | 15064        | 14571        | 3,40%             | 13952      | 8,00%             |

Table 1: number of cyclists referred to the years 2008/2009 in the inner city centre of Milan.

Source: (Census data by FIAB, 2009, p. 4).

The 7% of these data findings concern the public BikeMi bikes. In 40% of the stations, the percentage of public bike is over 10% compared with private bike. Taking into account the positions where there was an increase step, and comparing this increase with the percentage of public bike can it is clear that, in many cases, it is the BikeMi that led to an increasing use of bicycle.

In particular, the location of Bonaparte Minghetti, near the station Cadorna, had an increase of 28.3% passages and the relationship between public and private bicycles is of 27.26%. This figure is certainly correlated with the use of bicycle commuters arriving at Cadorna station and doubling at the BikeMi station. The Bastions Venezia, Romana and Cesare Correnti and Beltrami are the inner city areas where are registered the most numerous number of actual cycles passages. They are therefore some of the privileged bicycles inner city itineraries but again the trend is very small. We can therefore assume that, in many streets, it has been reached the maximum capacity of flow because of their structural characteristics, therefore, to increase the potential and actual number of bikes, structural streets interventions are needed.

This finding is of great importance if it is considered in relation to the policies intervention on existing roads as projects planned for the major roads, such as C.so Buenos Aires-Bastions Venezia, to improve those routes where the cyclists' passages are most numerous. The finding data show that, in the absence of structural roads interventions and clear policy of non-polluting vehicles, the Milan's cycling mobility may not know the development that currently characterizes the most major European cities.

In the following table are presented the data of the actual demand between 6 considered modes of travel behavior in the city of Milan.

#### MODES OF TRAVEL DIVIDED INTO DISTANCES AND DAILY CLASSES

| MODE/DISTANCE    | 0_3     | 3_6     | 6_9     | 9_12    | 12_15   | TOTAL     |
|------------------|---------|---------|---------|---------|---------|-----------|
| BYCICLE          | 33.632  | 17.273  | 3.552   | 1.092   | 733     | 56.282    |
| BIKE+TRAIN       | 25060   | 236     | 13      | 0       | 11      | 4.527     |
| TPL              | 132.083 | 145.650 | 41.377  | 16.397  | 9.497   | 345.004   |
| CAR              | 319.732 | 486.446 | 251.478 | 152.522 | 96.718  | 1.306.895 |
| TPL+TRAIN        | 144.277 | 7.766   | 1.757   | 136     | 162     | 154.097   |
| CAR+TRAIN        | 52.040  | 9.217   | 1.433   | 26      | 51      | 62.766    |
| TOTAL            | 686.030 | 666.587 | 299.610 | 170.173 | 107.172 | 1.929.572 |
| RIP. ACUAL MODES | 5,5%    | 2,6%    | 1,2%    | 0,6%    | 0,7%    | 3,2%      |

Table 2: modes of transport divided into distance classes of daily moves  
Source: (the Province of Milan, 2008, p.94).

#### POTENTIAL BYCICLE DEMAND RESULTING FROM THE OTHER TRAVEL MODES DIVIDED IN DISTANCE CLASSES

| MODE/DISTANCE | 0_3    | 3_6    | 6_9   | 9_12  | 12_15 | TOTAL  |
|---------------|--------|--------|-------|-------|-------|--------|
| TPL           | 341,25 | 285,1  | 4942  | 1138  | 336   | 69051  |
| CAR           | 827,93 | 945,84 | 29967 | 10328 | 475   | 221147 |
| TPL+ TRAIN    | 445,44 | 159,5  | 209   | 9     | 6     | 46363  |
| CAR+TRAIN     | 153,77 | 189,3  | 175   | 2     | 2     | 17448  |
| TOTAL         | 176,84 | 126,58 | 35292 | 11477 | 3819  | 354009 |

Table 3: potential bicycle demand  
Source: (the Province of Milan, 2008, p.95).

#### ACTUAL AND POTENTIAL CYCLISTIC DEMAND DIVIDED IN DISTANCES CLASSES

| MODE/DISTANCE    | 0_3    | 3_6    | 6_9    | 9_12   | 12_15  | TOTAL  |
|------------------|--------|--------|--------|--------|--------|--------|
| ACTUAL BIKES     | 378,99 | 175,08 | 356,5  | 109,2  | 744    | 60,81  |
| POTENTIAL BIKES  | 176,84 | 126,58 | 352,92 | 114,77 | 381,9  | 354,01 |
| TOTAL            | 214,74 | 144,09 | 388,57 | 125,69 | 4,56   | 414,82 |
| ACT/POT BIKES    | 21,40% | 13,80% | 10,10% | 9,50%  | 19,50% | 17,20% |
| RIP./MODE/OBJECT | 31,00% | 22,00% | 13,00% | 7,00%  | 4,00%  | 21,00% |

Table 4: actual and potential cyclist demand  
Source: (the Province of Milan, 2008, p.96).

At the end, the above-local demand, to which is directed the Mibike net, amount to, 415.000 daily moves, equivalent to 830.000 travels, while the actual ones are 60.000. Of these, the 86%, equivalent to 717.000 travels, are within the threshold of 6 km. The following table allow to analyze the composition of the bicycle travels divided in their motivation, where it is underlined the sharpen polarized presence of the study and work motivations, presence that is going to be stronger with the demand grow. On the contrary, the effect of the demand grow, produces a decrease of the leasures motivation in the mode division variable.

#### ACTUAL AND POTENTIAL DEMAND REGARDING THE MOTIVATION OF THE TRAVEL MODE/MOTIVATIONS

| MODE/MOTIVATIONS       | JOB           | STUDY        | LEASURE      | OTHER         | TOTAL          |
|------------------------|---------------|--------------|--------------|---------------|----------------|
| ACTUAL NUMB<br>BIKE    | 26709<br>44%  | 5997<br>10%  | 10052<br>16% | 18288<br>30%  | 61046<br>100%  |
| POTENTIAL NUMB<br>BIKE | 169339<br>48% | 38917<br>11% | 35745<br>10% | 109771<br>31% | 353772<br>100% |
| TOTAL<br>PERCENTAGE    | 196048<br>47% | 44914<br>11% | 45797<br>11% | 128059<br>31% | 414818<br>100% |

*Table 5: actual and potential demand divided into motivational category  
Source: (the Province of Milan, 2008, p.96).*

The most important data for the esteem of the benefits derived from the modal split towards bicycle mode is represented by the reduction of the motor-vehicles traffic. The indicator is the one of the vehicles number\*km, calculated as amount of the lenghts of each travel. This lenght as been for simplicity, has been assumed as equal to the euclidean distance between the centre of mass of the regional matrix zones, this lead to a sistematic underesteem with respect to the real distances measurables in the net of the 20-30%. Moreover, it has been considered the only solution of the motorvehicles traffic of cars and motos, without considering the one of the public transport, in the hypothesis that this transfer doesn't produce any contractions of the offered levels of the public transport service. The actual plus the potential demand matrix has been assigned to the net Mibike, by obtaining an esteem of the bikes flux that will interest the net. That assignment has been, primarily utilized in order to verify the correct individuation of the principal cycle net. This verify has allowed to consolidate the system of that net whose structure is reported in the next table.

The priority scale, for the execution of the Mibike net has also been derived from the assignment of the regional matrix and the following esteem of the flux of each track.

This value, directly dependent from the effective structure of the demand, that was already representative of the importan grade that each arch has in the net context, so it has been thought that there was no need to others qualification of the data.

From the graph are calculated, for each itinerary, the following indicators: complex itinerary and the lenght quantity of the cyclistic traffic (bikes\*km), calculated on the whole itinerary, theoretical medium traffic (bikes\*km/km), derived from the relationship between the quantity of traffic and the lenght of the itinerary complete and to be completed; maximum traffic and relationship between the medium and maximum flux, (Province of Milan, 2008, p.p. 97-98).

## CONCLUSIONS

Milan's Municipality doesn't have many data relating to all the variables that are part of the conceptual model, therefore in the above sections, only the most representative ones have been selected.

In a city with a low cycle use, as the Milan case, it should be logical to invest in infrastructure, traffic safety and so in the bike's inner city network, before stimulating and promoting bicycle use.

A qualitative level of bicycle facilities (cycle lanes, bicycle parking, traffic calming zones) should be implemented before Milan's Municipality starts stimulating cycle use through campaigns, information and through the BikeMi rental services.

The city should communicate the cycle measures that are taken and which specific advantages cycling has for the city residents so that they are more persuaded to change their car dependency travel behavior, but not only through theoretical promotions but, also, through concrete practical pro-bike provisions. It is also true that, at the current low level of Milan's cycling policy and infrastructural planning, it is not the role of the city to actively communicate on all the advantages of cycling as long as no comfortable and safe cycling environment will be created.

Once Milan city will reach this quality level, then it will be up to the individual users and the user groups associations, such as FIAB and Ciclobby, to continuously communicate about the use of cycling for the health, environment and traffic reduction positive results.

It has to be said that in the current Milan's bike's situation, cyclists are more involved and appealed to take real actions in the field of cycling comforts, than the local politicians, planners and transports' managers.

The Milan's two wheelers are becoming, more and more, a critical mass but they do not hold yet enough influence to force politicians to take actions in this field.

The Italian, Milan's study, is an exemplar case of the contrasting forces, points of view and priorities between the demand and the supply sides of the use of the bike in the urban context and as a real mean of transport.

In the following section the detailed data and policies' comparison will be provided.

## 10. DATA RESULTS

### 1) MILAN'S DATA RESULTS

The development of the bicycles mobility in Milan 2008-09 the annual number average of cyclists recorded was 54 in the year 2008, the "density" of cyclists is an average of 2.6 bicycle/km along the radial penetration of 4.2 bicycle/km in the stretch between the ring and the old city doors and of 7.2 bicycle/km in the stretch of crossing diameter of the circle of the old city doors. In practice the presence of cyclists halves passing from the centre to the outsider suburbs. The two considered years, (2008-2009), are characterized by a substantial stability of the cyclists number circulating and, of course, it does not show any significant growth trend of bicycles user's in Milan (Drufuca, 2009, p.p. 7-10). It can be stated that the results of the data is both substantial and significant. It reveals the real absence of positive or negative trends regarding the presence of cyclists in the city during the period (2008-2009).

Compared to 2007 and 2008 the overall data show a steady increase of the actual cycling use: approximately 29,100 bikes' passages recorded during the day with a + 2.11% compared to 2008 and + 7.78% compared to 2007, when it was registered the lowest overall number of cyclists. The analysis of the time series data since 2002 reveals that the first two years of survey data are uneven compared to the subsequents, they are very low compared to the general. For this reason, if we exclude, for example, the lowest number of bikes of the year 2002 and we take under consideration the series only since 2003, we have more reliable data.

In fact, the data of 2003 and 2008 yields an estimate for the given year close to 29,000 passage, in line with what was actually observed in the year 2010.

Even the service Mibike sharing, as structured today with 100 operating locations and daily use close to 5,000, can affect only marginally the actual and potential overall numbers of cycling mobility.

The Milan's cycling data conclusion is that the Municipality of Milan and FIAB Onlus dream of a “urban bicycle revolutionary use”, which has now invested all the major European cities, is therefore not yet started in Milan, despite the significant contribution given by the biking sharing system and despite campaigns and incentives for bikes rent services launched in the observed period.

The expected Italian actual cycling results, confirm the sharpen failure of the actual number of bike users in the urban centre of Milan due to the lack of the Italian local, regional and provincial bikes policies and a real bike's network plan.

Secondly the gap between the actual and potential demand of bike users in both national contexts is larger in Milan, than in Utrecht, because of the Dutch specific transport policy, plans and campaigns which give to cycling an important social and political role.

Thirdly as road safety problems are an important barrier of the promotion of cycling, Milan's cyclists are less than Utrecht's ones, as the bikes' networks and infrastructural provisions are not comprehensively planned with other means of public transports.

Cycling is still no option, in the Italian city context, even if the research has discovered also some light municipal attempts. Despite these attempts, in reality, the promotion of cycling as a real mean of transport option is still lacking in the supply side of Milan Municipality. Because of the supply side's efforts towards the car infrastructural provisions,

## UTRECHT DATA RESULTS

The bicycle share in Utrecht city is more used for movements than public transport. These are mainly movements over a limited distance (up to approximately 7.5 km).

For such distances the bicycle is an ideal method of transport because of its flexibility, so the actual number of cyclists in Utrecht is very high compared to the public transport's ones. Of the current car journeys, about half are also for short distances. The bicycle should in principle take over a large proportion of these journeys and as a result can make a major contribution to limiting the use of the car.

Bicycling and walking are the main method of transport in Utrecht each account for a large percentage of movements, respectively 33% and 25% (the average in the Netherlands is respectively 27% and 17%). These modes of transport are mainly dominant for movements over short distances, but even so a third of the movements up to 7.5 kilometres are made by car; a large number of these movements could also be made on foot or by bicycle. The car is for 30% and public transport for 9% the main method of transport.

Although the bicycle's share of the total number of movements is 33%, up to a distance of 5 kilometres this is 42%. The bicycle's share reduces considerably above a movement distance of 5 kilometres. The distance and itineraries variables are resulting the most important variables in the actual number of cyclists.

## 11. THE CASES STUDY COMPARISON

In this section the central question and the subquestions will be answered by both theoretical and analytical findings.

In both cases study the most important affecting variables, to make cycling convenient and to increase the actual number of two wheelers, are the infrastructural and policy ones. The reason is that these two indicators provide separate cycling facilities, along heavily travelled roads and intersections, spread parking and bike's services that are resulting appealing to the bike's demand side.

More in depth the single subquestions are answered as follow:

### 1) DISTANCES AND MODES OF TRANSPORTS UTILIZED (INTERCONNECTION)

**Is the distance affecting the number of the actual bikers in Utrecht and in Milan?**

The distance variable is resulting in both cases very determinant in the actual bicycle share but, not as much as the infrastructural and policy's ones. The reason is that good infrastructural provisions, such as: separated lanes, traffic calming measures, bike's traffic lights and urban public transports' facilities, the distances to be run will be more qualitative appealing. Moreover distances can be reduced by using both trains+ bikes intermodality means of transport, as Utrecht's case shows.

The distance is resulting strongly correlated to the land use and the urban planning of both cities. Utrecht compact city planning experience results determinant to enhance the use of the bike as a real mean of daily transport.

**Are the bikes more used instead of other means of public and private transports in both urban contexts?**

In Utrecht city context, the bicycle is the most popular mean of transport for distances up to 7.5 km. At the same time, it is interesting to note that, the bicycle is regularly chosen above 7.5 km: 15% of all journeys in the category 7.5-15 km.

While in the city of Milan, even in short distances, up to 0-3 km, the car is the most used mean of transport followed by the urban public transports.

**How relevant is the form of the two cities in the transport bike choice?**

The urban form of the city of Utrecht is more compact and the land use is more densely distributed therefore distances to cover by bike, for different purposes, are shorter than the Milan's one where business, residential and shopping districts are mostly separated by long distances. This is the fact that Milan's planning policy follows the urban sprawl principal, enlarging the city's fringes without better urban transports and bike's connections.

**Are different means of transports integrated and connected together in order to allow the bikes use also in long distances?**

In the Dutch case study bus stops and trains are well connected together with the bike's use thanks to the infrastructural and facilities provisions, such as stations and bus stops bike's parkings, locks and proper spaces for the bike's transport.

The Italian case study doesn't show a good integrated transportation policy, therefore the bikes are not easily to use in combination with others means of transports, because of the lack of infrastructural bike's services. Only for some "green trains" and special underground wagons, the bike's proper spaces has been provided but actually these trains are not very common.

## 2) TRAVEL MOTIVATIONS AND ATTITUDES

**What are the main travel motivations that influence the travel behavior and the bikes mode choice?**

In both cases the main travel motivations are regarding the safety and time saving topics. In the Dutch case the shopping and commuters travel motivations are the most common ones linked to the use of the bike as a mean of daily transport. In the Italian context, the actual percentage of bike's movements are reported mostly for the job (44%) and other (30%) purposes.

It is relevant to say that Italian cultural attitudes and Milan's people habits are still very car-dependent.

## 3) URBAN TRANSPORTS' PLANS AND STATUTE BIKE PLANS

**In both bikes' plans which infrastructural strategy effectively helps to increase the actual number of the urban cyclists?**

The fact that the Bike's Master Plan of the city of Utrecht provides a specific and qualitative main bicycle network. The bike's parking provisions, separated traffic lanes and traffic lights are appealing elements that increase the safety of bike users and therefore enhance the actual demand.

Utrecht bicycle plan has a wide range of bike's provisions and maintenance that are very suitable for the urban bike use.

On the contrary, the Italian case study is starting now to develop a proper bike's policy and to provide some infrastructural bike's services. These developments are far away from the Dutch policy ones in the area of traffic safety, parking spaces, separated and connected to each other bicycle lanes.

In Milan, the general shortage of bike's infrastructures, create great problem to cyclists who therefore risk their own life when making the travel behavior choice of using the bike in the inner city area.

In the Utrecht bike's Masterplan the social organisation and so the demand part needs and requests are have an important role, while in the Milan's one the FIAB, Ciclobby and other bike's supporters are excluded from the strategical policy development. This is one of the most determinant difference between the two approaches.

**So: "WHAT CAN BE LEARNT FROM THE EXPERIENCE OF UTRECHT AND MILAN'S TRANSPORT POLICY TO ENHANCE THE ACTUAL AND POTENTIAL NUMBER OF CYCLISTS?"**

From this research comparison, it can be learnt that key to the success of cycling policies in the Utrecht Dutch case is the coordinated implementation of the multi-faceted, mutually reinforcing set of policies that implement far more of the pro-bike measures and greatly reinforce their overall impact with highly restrictive policies that make car use less convenient as well as more expensive. It is precisely this double-barrelled combination of 'carrot' and 'stick' policies that make cycling so irresistible. A key factor supporting the Netherlands's high level of bicycle access to transit and the relatively low dependence on the automobile, despite high automobile ownership, is the great attention that has been given by local governments (such as Gemeente of Utrecht), to making streets pedestrian and bicycle friendly. Especially within the past twenty years, a major focus of local government traffic planners has been the introduction of more widespread traffic calming measures in both residential and commercial areas, where automobile traffic has been slowed down to give greater priority to pedestrians, bicycles, and traffic safety. These are the major lesson that Utrecht cyclists data and policies give to the low cycling habits and development in the Milan case of study. In the Utrecht's case study, separate facilities are only part of the policy strategy solution to enhance the actual and potential number of cyclists. Utrecht bike's Materplan reinforces the safety, convenience and attractiveness of excellent cycling rights of way with extensive bike parking, integration with public transport, comprehensive traffic education and training of both cyclists and motorists, and a wide range of promotional events intended to generate enthusiasm and wide public support for cycling.

From the Milan bike's data and transport urban plan, it can be learnt that the lack of the municipal facilities make cycling unattractive, and in many cases dangerous and make decreasing the actual and potential number of cyclists. Decisionmakers, planners, and citizens should reinforce each other in this way. There are not many cyclists because of the lack of facilities and there is no investment in cycle facilities because there are few cyclists. The infrastructural variable resulted to have a strong influence on cycling policies and therefore on the bike's use. For this reason, special attention should be given to municipal investments to facilitate a smooth linkage between the two modes: bicycle-parking facilities at public transport terminals, bicycle transport facilities on trains and busses, etc.

Without guidelines that recognise cycling as a fully-fledged mode of transport, a local cycling policy is doomed to fail. It is therefore recommended to develop guidelines for the design of infrastructure, which take fully the needs of cycling into account. The implementation of bicycle facilities will be counterproductive if the public does not see cyclists using them. On the other hand people will be reluctant to cycle as long as safe infrastructure for cycling is lacking. This requires a clever combination of 'hard' and 'soft' policies. Raising awareness, offering incentives and making cycling visible on the road are as indispensable in a bicycle promotion strategy as safe, direct, comfortable and attractive bicycle infrastructure.

## 12. FINAL CONCLUSIONS AND REFLECTIONS

The integration of cycling into overall transport policies, and also in relation to other policy fields like health, environment and spatial planning has a dominant role towards the increase of the actual urban cycling demand. Therefore, it should be pursued by the Milan Municipality and by the public Milan's transports agency (ATM), like the exemplar Dutch Municipality of Utrecht and the national railway company already did. Before integrating cycling in the overall transport policy (which should be the Milan's and Utrecht's ambition) it is important to have a national cycling strategy which puts only cycling to the foreground, like the Dutch one.

This way cycling will be in the spot light and local authorities will become interested in cycling measures and so the actual number of cyclists will increase.

Italy, that is in the beginning phase need a bicycle Masterplan, while countries that already are involved deeply, like Netherlands, need an integrated plan.

Networks can be very successful in releasing suppressed demand for cycling.

Planning for cycling will be most efficient when it is integrated in different kinds of policies, in transport, environment, land-use, health, economy and finances. Project realisation needs political will, expertise, and organisation in order to develop policy plans and to reserve budgets, taking into account the tradition in bicycle policies.

Italy and Netherlands are at a very different stage of development of their bicycle policy: in Italy, on a national level, cycling is only getting attention as a 'road safety problem', while Netherlands has very comprehensive approaches. The Dutch spatial planning policy has created favourable conditions for the development of a bicycle-friendly climate.

In addition, Utrecht case showed that the demand side (cyclists and social bicycle organisations), have a say and the participation this interest groups is strongly developed, meaning that measures can often rely on sufficient support.

International experiences can be very valuable to convince politicians about the usefulness and feasibility of a cycle strategy, and in this respect, the research wanted to go further towards pro-cycle policy, plan and attitudes, for enhancing the Milan current cycle situation.

Bicycle user-groups (the demand side) appears to be very important to articulate the needs of cyclists when requirements for bicycle facilities are formulated.

The national government should co-ordinate and stimulate the co-operation between different stakeholders. The key to promoting cycling use, may be to change the habits of decision makers, planners, and therefore of citizens.

In the Italian case, the habits are still strongly inclined to only satisfy the mobility demands of motorised traffic. They should realise that cyclists and pedestrians are just as much road users as are car and lorry drivers, they often forget about the potential contribution of alternatives like cycling. Moreover, suggestions on what occurs for a successful promotion of cycling, can be added in the conclusion. They refers to the following strategies: communication, integration on different policy levels and in mobility policy, safety (increase of cycling and increase of safety is possible), intermodality of public transports.

Milan's case study showed a level of gaps in data, information and knowledge, that underlines how culturally, and therefore practically, the bicycle is still not seen as a real mean of urban transport, but more a recreational one. Good comparable data on cycling, as a mode of transport, is very much lacking (and on walking as well). This is a significant barrier to progress when countries are trying to facilitate more pro-cycling policies. Also in relation to target setting and involving different stakeholders in the development and investments of measures, data on use and safety of cycling for several target groups is needed.

A clear distinction should be made between the:

- 1) implementation of the policies (are the announced activities undertaken as they were proposed?);
- 2) direct effects of these activities (e.g. better bicycle infrastructure, more involvement of stakeholders);
- 3) development of performance figures (what it is all about in the end). Bear in mind that the executed policies are only one factor of the many factors influencing people's choices in their travel behavior.

It is instructive to see the advantages of the wider way that the agenda for cycling policies are being set: in relation to mobility opportunities, or to solve problems as a result of car growth, or in relation to spatial planning, the environment or health. Road safety problems are an important barrier for the promotion of cycling. Ignoring cycling is no option,

This research would recommend a coordination of national policies on mobility, health, environmental, social and economic policies to incorporate the promotion of cycling and enhancing the actual number of two wheelers.

The Netherlands cycling experience is exemplary in showing that the bike is a normal mode of transport which fits for every day trips. As the growing accessibility problems in urban areas constitute an opportunity for the further development of cycling promoting policies, I hope that the Dutch example will be followed by the Italian national, regional, provincial and municipal transport and planners policy makers.

To conclude, there are many ways to make steps towards a more bicycle-friendly climate, and local conditions should indicate what the best step is to be taken. But progress is dependent of a combination of knowing what is effective, how to plan and organise this, and of involvement and political will.

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