

# TeMA

Journal of  
Land Use, Mobility and Environment

There are a number of different future-city visions being developed around the world at the moment: one of them is Smart Cities: ICT and big data availability may contribute to better understand and plan the city, improving efficiency, equity and quality of life. But these visions of utopia need an urgent reality check: this is one of the future challenges that Smart Cities have to face.

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CITIES, ENERGY AND MOBILITY

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Land Use, Mobility and Environment

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## TOURISM AND MOBILITY

### BEST PRACTICES AND CONDITIONS TO IMPROVE URBAN LIVABILITY

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#### ABSTRACT

This paper considers the relation between tourism and mobility and tries to highlight how tourism can act as a driving urban function in order to promote more sustainable lifestyles. Tourism and mobility are strictly connected: the moving from the usual residential place for leisure or entertainment represents the essential condition of tourism. There is no tourism without physical displacements, as the WTO definition affirms, highlighting that the movement of people is connected to two different mobility forms. On one hand, the tourist displacement is generated by the need to reach the destination (transit/access mobility). On the other hand, flows are generated by tourist activities at destination (visit, stay, entertainment, etc.) and it could be defined as an internal mobility. In both case, tourism represents a factor of human and environmental pressure. The WTO (2012) estimates that tourism mobility is responsible for 5% of CO2 emissions (referred to air travel) and points out that a change in the styles of tourism consumption is necessary also to meet the challenges of climate change that present cities must face. Traditionally, tourism and transport have been considered separately and mobility has been seen as a prerequisite rather than an integral part of the tourist activity; rarely this connection has been investigated in tourist planning and in mobility planning. The movements of visitors had a marginal role before the acknowledgment of the sustainable mobility paradigm, which introduced the concept of efficiency in transport system connected to the reduction of the environmental and social impacts encouraging modal shift in order to contrast the car-dependence. In the context of these considerations, this article tries to underline how tourism could play a strategic role in promoting sustainable way of moving inside the city if it will be mainstreamed within the government process of urban transformation. As a "pervasive" urban activity, tourism involves different sectors (public and private) and different social levels and it can act as an "accelerator of changing" to improve a new mobility culture and to change users behaviors. Which are the conditions needed to activate this change? This is the main question this paper tries to answer also considering some significant examples oriented to integrate tourism promotion with mobility planning.

#### KEYWORDS:

tourism-mobility integration, urban livability, urban transformation

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## 旅游业与移动性： 改善城市宜居性的最佳实践和计划

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### ABSTRACT

本文研究的是旅游业与移动性之间的关系，并尝试突出旅游业能成为一种可以推动更可持续生活方式的强劲的城市智能。旅游业是当今城市经济中的一个重要组成部分，同时也是人类和环境压力的一个因素。世界旅游组织（UNWTO2012）预测，旅游业占到了5%的二氧化碳排放（涉及航空旅行）。该组织还警告，为了应对现代城市必须面对的气候变化挑战，需要改变旅游业的消费方式。考虑到旅游业的增长趋势（预计到2030年会有18亿国际游客，UNWTO 2014），需要制定有效的缓解措施。在这些缓解努力中，技术进步是一个重要的工具，但它单靠自己无法解决气候变化问题。因此，为了有效地化解运输部门面临的压力，需要采取混合措施，包括技术改进、监管和基于市场的措施以及行为改变。技术创新（产品和流程）的贡献是非常重要的，但为了真正起作用，它必须整合到城市转型的治理过程中。旅游业需求中出现的变化（可理解为城市用户特殊需求类型的一种表达）的确表明，人们正日益关注旅游业消费。而且与这些变化相对应，那些旨在增加城市对游客吸引力的城市政策也日益以创新服务的定义为导向，以此支持和促进城市旅游业。这其中就包括推动将旅行方式转变为使用汽车（可持续移动性），并成为城市竞争力的一个战略要素。基于这些考虑，本文将提议分析一些旨在将旅游业与移动性整合作为城市系统新成就的最佳实践。

### KEYWORDS:

旅游业与移动性整合, 可持续旅游业, 可持续移动性, 智能移动, 城市政策

## 1 TOURISM AND MOBILITY INTERACTION

"Tourism is a social, cultural and economic phenomenon, which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes. These people are called visitors (which may be either tourists or excursionists; residents or non-residents) and tourism has to do with their activities, some of which imply tourism expenditure". The definition is by the World Tourism Organization (UNWTO/OMT), the main international institution of the United Nations system aimed at spreading sustainable tourism development particularly in developing countries.

In the context of the scientific literature, tourism represents the set of movements generated by the search for places and activities that are different from usual and have no economic motivation (Miossec 1976, Page 2003, Cohen 2004). In this definition, tourism depends on the coexistence of at least three conditions: 1) a displacement from the residence place to a different one; 2) an overnight stay (twenty-four hour minimum to be considered as a tourist); 3) a motivation that is different from work that activates the displacement. Origin, duration and motivation of the move are the variables for which tourism is defined and classified. Such a definition underlines that mobility is essential to tourism.

Whatever the definition, or the distinction among typologies of tourism, it is undeniable that there is a close connection between tourism and transport. The growth and evolution of tourism has been intrinsically connected to the development of the transport system: it is known that railways and then the airplane decisively contributed to its growth and diffusion as a "mass" phenomenon, in a relatively short time. The importance of transport is then decisive in the planning phase of tourist activities, accessibility having a strong influence on the choice of a destination and, in this sense, it can constitute a competitive factor. This is only one aspect of tourist mobility (external component). The second aspect concerns the displacements to visit the chosen destination. Both types of displacement are characterized by a high concentration of space-time affecting the operation and organization of the urban system concerned.

Page (2005) refers to a "tourist transport system" which is a complex system combining the physical movement of visitors using one or more forms of transport (the logistical component) and the travel experience (the experiential component). Both components of the tourist transport system demonstrate the system's unavoidable environmental, economic and social impacts.

Tourism, in fact, despite having a role in the economy is also a catalyst for negative impacts on the environment (emissions of pollutants due to the increasing volume of traffic; increased waste; noise; consumption of primary resources; etc.) and more generally on urban livability (quality of services, social integration, well-being and safety of the resident population).

The balance between economic development and environmental protection is the main challenge that the cities that decided to invest in tourist activity, maybe more than any other, are called upon to face.

The European commitment to achieving sustainability objectives, including the development of tourism, has led to the production of documents and codes of conduct aimed at supporting both the realization of integrated public policies (convergence of goals between different stakeholders) and raising awareness of tourists (compared to the needs of local communities; reduce consumption; navigation optimization, etc.). One of the priorities consists in reducing the CO<sub>2</sub> emissions generated by tourist mobility in Europe (Tourism Sustainability Group final report "action for more sustainable European tourism").

In the report *Climate Change and Tourism: Responding to Global Challenges*<sup>1</sup>, international and domestic tourism, from transport and accommodation are estimated to represent between 4.0% and 6.0% of global emissions (fig. 1).

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<sup>1</sup> The report was presented in the context of the Second International Conference on Climate Change and Tourism, in Davos, on October 2007. It highlighted the vulnerability of the sector to climate change and the impacts of tourism on climate itself. It underscored the need to develop the tourism sector in a sustainable manner in order to mitigate greenhouse gas emissions firstly deriving from transports and accommodations.

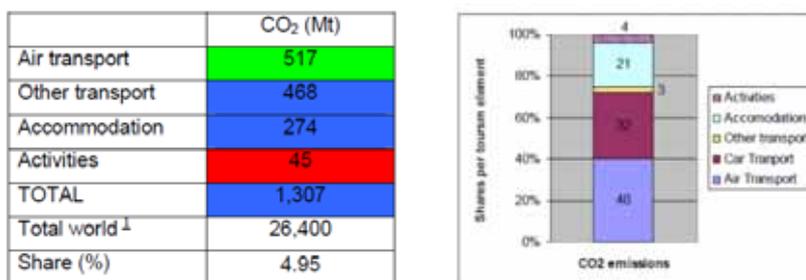


Fig. 1 Emissions from tourism and contribution of various tourism sectors to CO<sub>2</sub> emissions. In the left table, the color of each grid cell represents the degree of certainty with respect to the data and underlying assumptions. Green represents a degree of uncertainty of +/-10%, blue +/-25% and red +100%/50% (Source: Report on Climate Change and Tourism: Responding to Global Challenges, 2007)

In Italy, tourist mobility is largely characterized by the dominance of car use and by a trend of cities as a preferred destination. At present, indeed, cities have become one of the preferred tourist destinations (Page and Hall, 2003) generating a new form of tourism that can be defined as urban tourism<sup>2</sup>. The presence of cities in the “tourist experience” shows the change that has been increasingly affecting tourist demand. Indeed cities have become the “object of tourist desire” as they are the place where more experiences can be lived contemporarily and they represent a perfect destination for a short holiday.

The need, therefore, to provide infrastructure and services aimed at encouraging forms and modalities of tourist transport more compatible with the demands of sustainability (environmental, social, economic) becomes a priority to make cities livable. Complicated and a long term issues, if we consider that the realization of these objectives (as well as an indispensable collaboration between different stakeholders, public and private, involved in the planning, promotion and management of tourism) requires also a substantial behavioral change by the user.

As regards Italy, the relationship between public entities responsible for managing tourist flows and private operators is often confrontational. Coordination between the different skills, instead, it would be necessary for the creation of an integrated tourism system. The supply and quality of services for tourist activity plays a significant role and affects mainly the degree of attraction of a city making it more competitive.

City planning actions (intended as the search for an order according to a plan) should mostly focus on this last component (the supply of urban services and facilities) to minimize the negative impacts generated by tourism on the city, envisaging an improvement of the conditions of use of the city itself.

At present, tourist activity still seems to be intended as “other” and it is seldom integrated within the urban planning process. Policies for urban promotion, however, seem to concentrate mostly on city branding, rather than on the definition of strategies aimed at making cities able to support an additional urban load expressed by tourist demand. Referring to these premises, this article is aimed to underline how tourism could represent an urban drive function able to promote more sustainable lifestyles especially referring to mobility issues. In the first part, tourism characteristics are explored with particular reference to mobility. The second part considers some European examples where the integration tourism-mobility represents an occasion to improve the diffusion of a sustainable way of moving. In the conclusion, the paper tries to individuate conditions that could improve integration between tourism and transport.

<sup>2</sup> Urban tourism has been investigated in literature, for more in-depth analysis see Ashworth G. and Page S.J. (2010) Urban tourism research: Recent progress and current paradoxes, *Tourism Management* 32 (2011) 1-15, Elsevier; Edwards D., Griffin T., Hayllar B. (2008) Urban Tourism Research Developing an Agenda, *Annals of Tourism Research*, Vol. 35, No. 4, pp. 1032–1052, 2008; Bramwell B. (1998) User satisfaction and product development in urban tourism, *Tourism Management*, Volume 19, Issue 1, February 1998, Pages 35-47, Elsevier.

## 2 TOURIST FRUITION AND URBAN MOBILITY

The spatial-temporal movement represents the essential component of the tourist activity in the absence of which there is no tourism. The motivation of tourist displacements is also a key element in defining the characteristics of tourism demand. Tourists are "temporary citizens" who, although for a concentrated period, express a demand for services and facilities to which the city must answer, in terms of performance, amenities and space (urban supply) (fig. 2). Tourism, therefore, represents an additional urban load that, if not properly planned and managed, can affect the balance and the organization of the city. In this sense, the relationship between tourism and urban activities is often confrontational and it affects the mobility system. Within tourist cities, in fact, an overlap occurs between at least two different types of mobility. On the one hand, the daily displacement flows, generated by residents and daily users (users and city commuters). On the other hand, occasional users (tourists and one-day visitors) generate displacements.

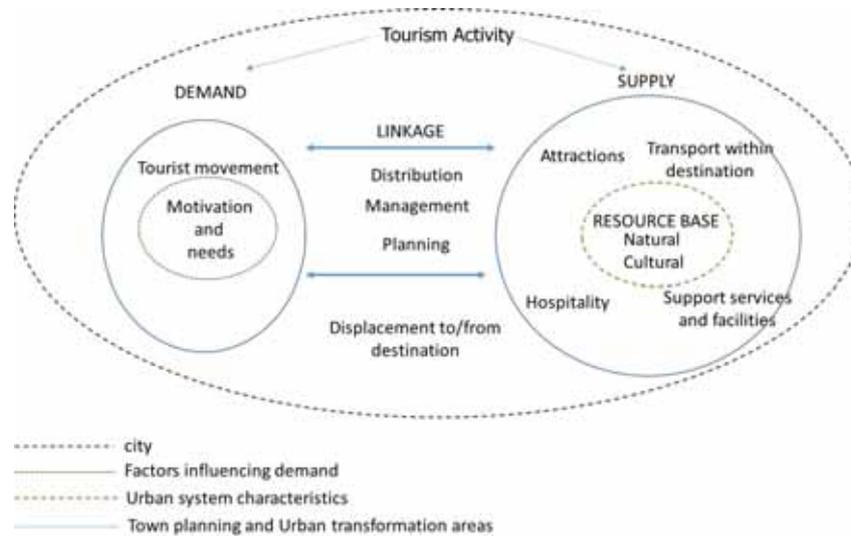


Fig. 2 Conceptual scheme of the tourism system referred to the component of demand and the component of urban supply. Urban Planning can act on the supply component in order to address tourist demand towards more compatible ways of fruition of urban resources (rielaboration from Lubbe, 2003)

This overlap creates congestion (traffic, air and noise pollution) affecting particularly the central urban areas. These flows tend to be concentrated in urban areas, mainly characterized by the presence of attractors, artistic and architectural historians, at specific times of the year. These considerations should be the object of an integrated mobility planning, considering tourist mobility as part of the urban motility system (meant as the set of displacement generated to carry out urban activities).

Leisure mobility (including tourist component), in fact, represents an important section of urban displacements (work, study, family management, commissions, etc.) and represents the 24% of total displacements (ISFORT, 2013). Data show the predominance of the use of the car for these displacements even though there is a low propensity to reduce car use in favor of public transport (Fig. 3, 4, 5).

The situation in Italy, in fact, is characterized by a prominence of car users whose habits are hard to change (fig. 6).

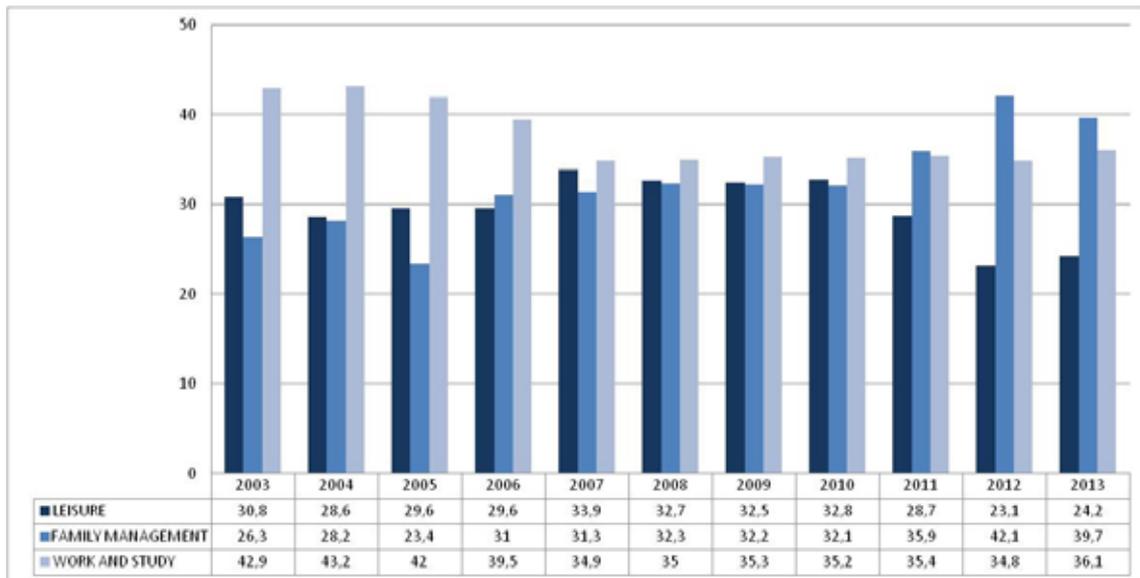


Fig. 3 Urban mobility by motivation in Italy (elaboration on ISFORT data 2013)

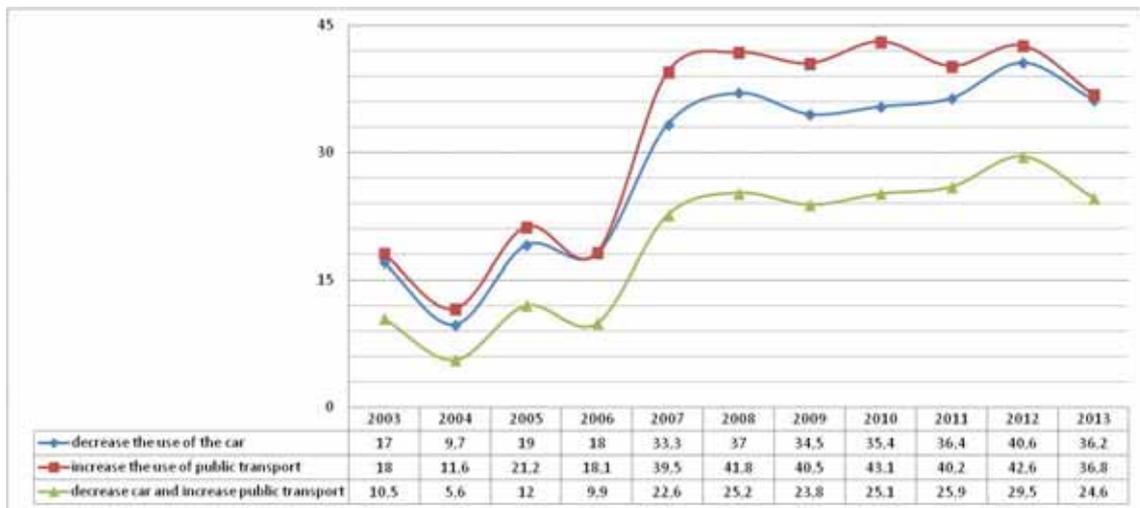


Fig. 4 Customers' propensity to reduce the use of car, in Italy: decrease car and increase public (green); decrease the use of the car (blue); increase the use of public transport (red).

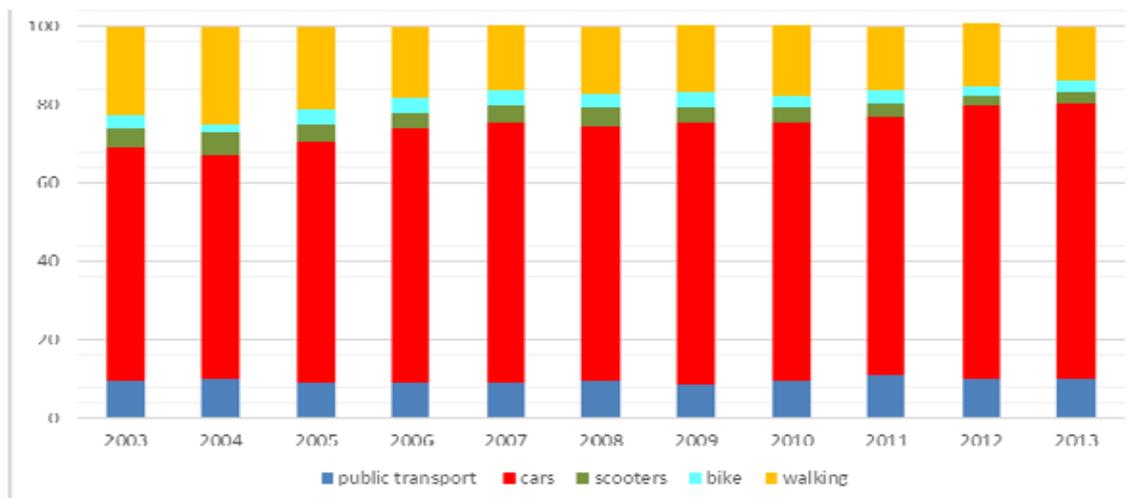


Fig. 5 Percentage of displacement by means in Italy: public transport (blue), cars (red), bikes (green), scooters (turquoise), walking (orange)

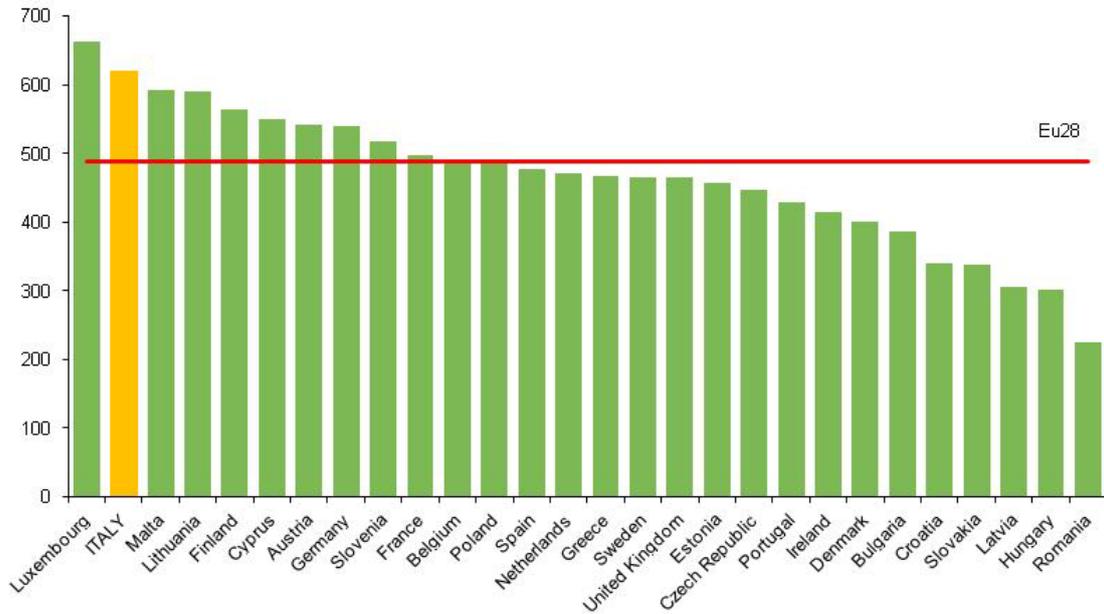


Fig. 6 The number of cars per thousand inhabitants (motorization rate) allows one to measure the negative impact of congestion on the road system mainly due to the density of vehicles in use. In Italy, the motorization rate increased from about 501 cars per thousand inhabitants in 1991 to about 621 in 2012, one of the highest rates in the world and the second in Ue28. (Elaboration on data from ISTAT 2012)

At present and especially as it concerns the Italian situation, mobility is overbalanced towards road transport and private cars. Italy is among the EU countries that have the highest motorization rate (Eurostat 2014), even though data show that there is a general propensity to reduce the use of the private car. Really, the Italian situation is characterized by a large difficulty to affirm a new mobility culture based on more sustainable forms of urban mobility, despite a prolific production of laws and roles referred to emergency of adopting alternative ways of moving to minimize negatives impacts of urban mobility on the human health and on climate change.

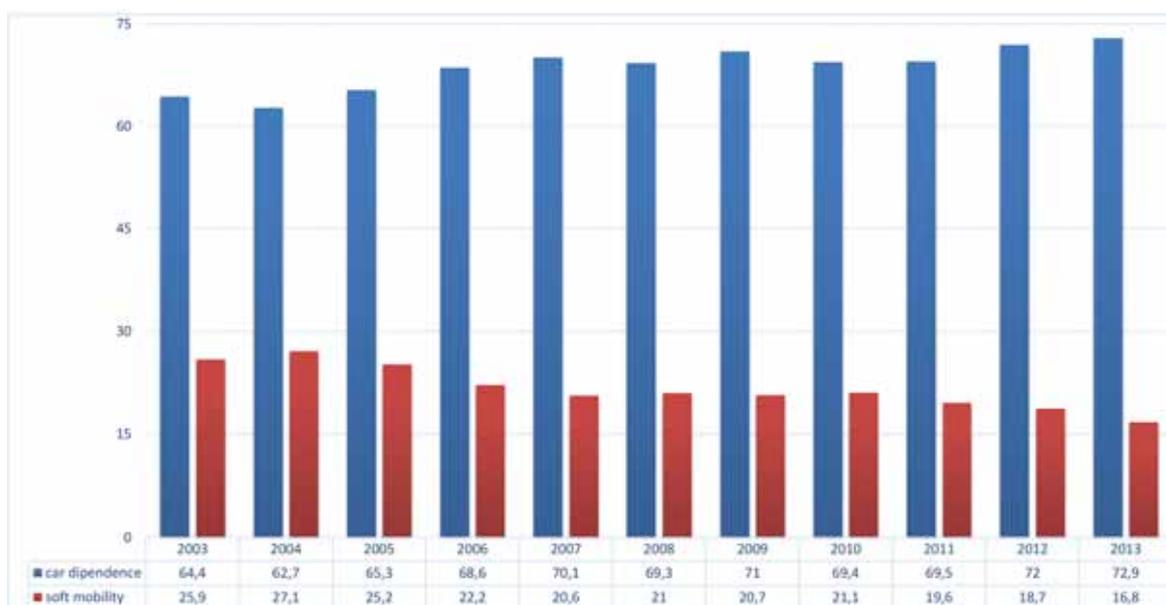


Fig. 7 Despite the general European trend, in Italy the “soft mobility” is not yet affirmed. In this case, soft mobility considers pedestrian and cycle displacements (Elaboration on ISFORT data)

A recent study referred to European cities<sup>3</sup> (Pieralice and Trepiedi, 2015) shows the correlation between the urban mobility policies and modal choices and proposes an experimental mode to define an Index of Sustainability<sup>4</sup> to evaluate the effect of these policies. Authors define four dimensions of urban sustainable mobility, particularly referred to:

- social sustainability as it concerns the accessibility aspect;
- social sustainability as it concerns the livability conditions;
- environmental sustainability;
- economical sustainability.

These dimensions have to be contemporarily considered in order to define policies and intervention that could have some efficacy according a holistic vision of the problem.

Authors elaborate a ranking on the base of the value that the Index assumes, referred to a sample of 22 European countries. Analysis underline how sustainable mobility depends on different variables and it is not strictly connected to the motorization rate nor to the GDP. It depends on a mix of factors that refer to culture, at both social and administrative level, and to the governance ability in promoting and acting policies aimed at the diffusion of forms of mobility alternative to the use of the private cars. Authors define this attitude as an “innate sustainability” that characterize some countries rather than others. The top of the ranking, in fact, with some exceptions probably due to a lesser economic availability, is occupied by those European countries that have a deep-seated tradition in policies and practices of sustainable mobility.

What seems to be relevant is the proposal to test the index within the General Transport Plan of Rome (Italy) in order to improve the performances expected by the plan in a five-year period. This proposal seems to be particularly significance especially referred to Italian situation as it concerns the present organization of the mobility planning. In Italy, in fact, the urban mobility system is regulated by different plans, acting at different territorial level (tab. 1). Within these plans, tourism rarely is considered as a part of mobility system and interventions and/or measures vary according the importance that it assumes within the objectives of urban development policies.

TERRITORIAL LEVEL	PLAN	OBJECTIVES	TOURISM INTERATION
NATIONAL	General Transport Plan	To define a common approach to transport policies To coordinate skills among different administrative levels	WEAK
REGIONAL	Regional Transport Plan	To assure integration among transport services To provide new infrastructure	MEDIUM
LOCAL	Urban Mobility Plan	To define long-term strategies for the mobility system also between multiple municipalities	STRONG
LOCAL	Urban Traffic Plan	To define a set of coordinated interventions to improve public and private urban mobility (vehicular pedestrian, cycling).	VERY STRONG

<sup>3</sup> The study investigates the impacts of the modal split in the European context and considers a large number of data by different sources Eurostat, Eltis, Epomm-Tems, Isfort-Audimob, Ispra.

<sup>4</sup> The Sustainable Index results from four components: weighted index of motorization; index of accidents; mobility index, pollution index by PM10.

LOCAL (sectorial)	Urban Parking Plan	Rationalization of the urban supply for parking; Considers different typologies of parking demand.	STRONG
LOCAL	Sustainable Urban Mobility Plan	Proposes a different approach to the urban planning according to a strategic approach referred to participation, evaluation and integration principles.	VERY STRONG

Tab. 1 Organization of mobility system by plans in Italy. The last column refers to the level of interaction among mobility policies and tourism planning

Local level represent the place where interaction between tourism and mobility could occur and SUMP5 seems to be the technic tool to improve this objective. The sustainable urban mobility plan (SUMP) introduce a new approach to the mobility planning according the indication given at European level via the Action Plan on Urban Mobility (2009) and the Transport White Paper (2011). It refers to a planning concept able to address transport-related challenges and problems of urban areas in a more sustainable and integrative way. This plan proposes a different approach to the mobility planning, posing more attention to the involvement of the social component (citizens and stakeholders) and promotes a new mobility culture based on a long-term vision of benefits deriving by shared solution to the issues of urban mobility<sup>6</sup>. The innovative approach that SUMPs want to affirm represents a first point of convergence expressed by the idea of a collaborative planning among both different administrative levels and sectors involved in urban mobility management. Assuming that tourism can be consider as a component of the urban mobility, these plans should indicate possible sustainable strategies and measures to reduce the impacts of tourist flows on the urban mobility system. Strategies could be balanced between pull measures (incentives) and push measures (restraints) promoting sustainable ways of moving and visiting the city.

“Pull measures” refer to mobility polices aimed at promoting a “car-free tourism” and they should focus on:

- *functional actions* (mainly concerning the administrative level):
  - tariff integration among different operators of public transport both at local and regional level;
  - strengthening of the public transport supply;
  - modernization of the means (use of zero-emission vehicles for the public transport such as: electric bus,
  - extension of the operation time of the public transport;
  - institution of public transport lines connecting the attractive poles<sup>7</sup> inside the city;
  - integration between urban planning mobility and land use;
  - prevision of sectorial plan to integrate the urban traffic plan (urban parking plan, mobility cycling plan<sup>8</sup>; pedestrian mobility plan; etc);
  - improve urban road safety;

<sup>5</sup> The mobility policies undertaken at European level in the last decade (Action Plan on urban mobility, in 2009 and Transport White Paper, in 2011) indicate the Sustainable Urban Mobility Plan (SUMP) as a new mobility planning tool able to face the energy and environmental problems and the inefficiencies of urban transportation, introducing an integrated approach to the traditional mobility planning approach.

<sup>6</sup> The guidelines elaborate for the European Commission and for the Executive Agency for Competitiveness and Innovation show principles and objectives of SUMP. Benefits of SUMP are substantially referred to ten points: 1) improving quality of life; 2) create economic benefits; 3) contribute to a better health and environment; 4) make mobility seamless and improve accessibility; 5) make more effective use of limited resources; 6) public support; 7) prepare better plans; 8) using synergies, increasing relevance; 9) fulfilling legal obligation; 10) moving towards a new mobility culture.

<sup>7</sup> “Attractive poles” refer to elements (building, museum, exhibition centers, etc.) that exert a pull on tourist flows acting as “urban magnets”.

<sup>8</sup> In Italy, the law 366/1998 set the rules for the funding of the cycling mobility.

- widespread dissemination of information;
  - involvement of stakeholders for economical support;
  - planning of campaign of information to involve citizens;
  - adopting and promoting the sharing mobility (car sharing, bike sharing);
  - incentives for residents who do not own a private vehicle and/or do not exceed a defined threshold of km per year;
  - free loan of eco-vehicles (bikes and electric cars) for some categories of users (associations, schools, administrations) to improve the use of sustainable means of transport;
  - data sharing;
  - adoption of a systemic approach to the urban issues.
- *physical actions* (mainly concerning the quality of urban spaces):
- design of an integrated network of public transport;
  - improving dedicated lanes for public transport;
  - realization of soft mobility paths (cycling and pedestrian);
  - building of pedestrian paths both in central and in peripheral areas;
  - planning of connected parking areas for bus tourists;
  - design of bus stop as “active poles” of urban services supply (information; safety; integration with urban function, etc) located in strategic points of urban area;
  - individuation of strategic points to manage mobility flows inside the city;
  - requalification of significant places for citizens;
  - improving green areas and paths inside the city;
  - defining and promoting urban image.

“Push measures” refer to mobility policies aimed at dissuade the car use by imposing restrictive actions that should focus on:

- *functional actions* (mainly concerning the administrative level):
- taxation to access in urban central areas (congestion charging, pass for tourist bus, road pricing);
  - imposition of a tourist tax;
  - improving the number of traffic restricted areas within the city;
  - increasing the limited speed zones (zone 30);
  - design a web portal for the exchange of information related to tourist mobility;
  - establishing a call-center dedicated to diffuse information about tourist access by coach and cars
  - access restraints and taxation for no eco-vehicles;
  - institution of park and ride areas
- *physical actions* (mainly concerning the quality of urban spaces):
- planning the localization of smart sensor to control accesses to the historical centers or in other sensible urban areas;
  - creation of a network of parking areas outside the central zone of the city;
  - design of a network of “city gate” acting as check-point for the measurement and the management of the incoming tourist flows;
  - planning of the short-term parking areas;
  - design of park and ride areas as equipped zone to manage incoming urban tourist flows;
  - design of an efficient system of signage;
  - use of GPS system to allow visitors to choose the permitted driveways itineraries inside the city.

## 2.1 RESTRICTIVE MEASURES: THE CASE OF THE LOW EMISSION ZONES (LEZ)

Among the restrictive mobility policies adopted in the last decade and aimed at improving the quality of air in the cities, the institution of the Low Emission Zone (LEZ) could be particularly significant also referred to the tourist use of the city. The aim of the LEZ is to preserve sensible urban areas (mainly corresponding with historical center) from pollution caused by traffic (production of PM<sub>10</sub> in particular).

In the case of London, the institution of LEZ (2008) covers most of Greater London (about 1579 square km, 7.7 million of inhabitants) disposing limited of accessibility to vehicles that do not respond to the fixed standard. The measures, then, refer to the state of the mean on the base of “the polluter pays” principle and they aim at a drastic reduction of polluting emission produced by large vans, light commercial vehicles and other special vehicles, public or private. By 2016, measures will be more restrictive also for public transport means that will be comprises in the EURO 6 category or will be composed by hybrid vehicles. The restraints will interest also ambulances and campers. Strict measures will interest also tourist buses whose accesses will be forbidden if they will not respect the standards. The institution of LEZ is adjunctive to the Congestion Charge Zone that is applied to the central part of London and it is substantially different from this. LEZ operates 24 hours a day, for every day while the CC operate from 7.00 to 18.00 p.m. five days a week. In Norway, the National Transport Plan (2014-2023) instituted some LEZ combined with other system of pricing (road pricing) to access the central core of the main cities (Oslo, Bergen e Trondheim). The revenues will be used to improve the supply of public transport and to create new infrastructures dedicated to the soft mobility (pedestrian and cycling). The French *Versament Transport* date back to the Seventies and represents the main revenue allowing the public transport authorities to invest in better quality of the public transport services. This measure can be applied to the tourist cities with a population of less than 10.000 inhabitants and it represents an economic contribution of the visitors to the improving of the public services supply. Restriction measures indubitably constitute a revenue for tourist cities representing a contribution of tourists for the use of services and infrastructures, they are also the object of dissenting views and they can change by country to country according to the specific objectives of their policies.

## 2.2 INCENTIVE MEASURES: THE BIKE SHARING SYSTEM AS SUCCESS PUBLIC SERVICE

The practice of bike sharing has widely spread in the recent year as one of the main alternative urban services to reduce traffic pollution in the cities. The revolutionary idea refers to free use of a bike that can be picked up and returned in specific locations and dates back to the Sixties, when in Amsterdam was proposed the White Bike program based on the free use of bike to move in the city<sup>9</sup>. From its origin, this public service has changed both for the necessity to improve the customer tracking and for the development of the bike technologies. The evolution of the bike sharing program and its diffusion as a component of the system of urban transport supply passed through three different generations and it rapidly has spread in European cities more than in other parts of the world (DeMaio, 2010). At present, bike sharing represents one of the “smarter model” of urban service using technology both to use and to manage the service. The current smart generation of bike sharing system bases on a variety of technological improvements, including electronically-locking racks or bike locks, telecommunication systems, smartcards and fobs, mobile phone access, and on-board computers. In the meantime, a new generation of bike sharing already is affirming a model aimed to improve efficiency, sustainability, and usability of the service to better diffuse the use of bike for urban displacements. This is being accomplished by improving deployment of bikes, installation, powering of stations, tracking, pedal assistance bikes and other business models.

Despite the large recourse to this system as virtuous urban practice, the use of bike sharing for tourists is not still diffused due to the difficulty to access the service for a temporary user typology as tourist is. The most diffuse systems, in fact, propose a yearly subscription or present high level of difficulties to rent the

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<sup>9</sup> The program had not the expected success as the bikes were stolen or throw in the channels.

bikes. These difficulties mainly refers to the lack of information, to the only use of local language, to the duty of age limits, to the restrictions for categories of user different from residential. Nevertheless, the integration of cycling and enhancement of the urban cultural heritage is an increasingly success urban practice to promote more sustainable way of visiting the cities. In 2012, a recent comparative survey (EuroTest, 2012) referred to a sample of forty European cities highlighted the characteristics to define the efficiency of the bike sharing system, especially as it concerns tourist use. If we compared the ranking elaborated by Eurotest (2012) and the ranking of the Top Cities destinations Ranking elaborated by the Euromonitor International (2014) some discrepancy stand out between the quality of the bike sharing system and the level of tourist attractiveness. London, Barcelona and Amsterdam, for instance, do not match high level for the quality of the bike sharing system while occupy high positions in the destination ranking. Although the limits of these rankings and of their comparison, it is possible to make some considerations about how to improve the use of bike sharing to promote sustainable tourism mobility. In particular, present systems should be integrated by technical measures aimed at:

- optimize the urban deployment of the stations;
- definition of planning criteria for the stations localization (i.e. closeness to strategic urban function; network among attractiveness, and so on);
- integration with the local public transport to encourage the modal split;
- facilitate the procedure to access the service;
- improve the quality of information to use the service;
- increase the quality of the means;
- design stations as integrated poles of urban services.

These indications should be supported by the coordination among public administrative and private operators. The involvement of private investors could improve the quality of the service and, at the same time, could reduce the costs both for fabrication and the management of the whole system (installations, purchase of the equipment, etc.) for the administration. There is no ideal model of provision, as it depends by different factors (population, size of the city, number of daily users, etc.) but it could be reasonable to indicate the mix private-public model as one of the more actionable.

CITIES	SYSTEM	EUROTEST EVALUATION	POSITION IN THE EUROTEST RANKING	POSITION IN THE EUROMONITOR INTERNATIONAL RANKING	NUMBER OF TOURIST ARRIVALS (MILLIONS)
Paris	Vélib'	very good	2	5	15,2
Brussels	Villo!	very good	3	55	2,9
Berlin	Call a bike	very good	4	37	4,3
Milan	BikeMi	very good	9	24	5,8
Munich	Call a bike	very good	13	57	2,8
Prague	Homeport Prague	very good	19	21	6,2
Dublin	Dublinbikes	good	21	49	3,3
Vienna	Citybike Wien	good	22	28	5,1
London	Barclays Cycle Hire	acceptable	28	4	16,7
Barcelona	Bicing	acceptable	36	25	5,5
Amsterdam	OV-fiets	very poor	39	27	5,2

Tab 2 Comparison between Eurotest evaluation of the bike-sharing system in 40 European countries and the Euro-monitor International Ranking of the most visited destinations in the world. Table contains only cities that are present in the both rankings

### 3 TOURISM AS “ACCELERATOR” OF CHANGE

This paragraph is aimed to underline how tourism could play a strategic role in the promotion of new forms of fruition and visit the city that could be more sustainable for the urban and the environmental system. This assumption refers also to the change that occurred in tourist demand due to the innovation technology. This radically changed the way to communicate and amplified the experiential component of tourism. Referring to this component it is possible to state that tourists represent the ideal typology of urban users to test the effects of innovative policies aimed at shifting by the actual unsustainable behaviors to smarter use of the resources and better lifestyles.

Tourism can be considered as an urban activity as it is concentrated in cities expressing a specific demand of use services and facilities that, in origin, have not been designed for tourist use. As a pervasive activity<sup>10</sup> where social component has a fundamental role, tourism can influence behaviors and plays a driving role in promoting more sustainable use of cities (soft mobility, decrease of waste production, water use reduction and energy consumption, etc.). In this vision, town planning has to play a key role in driving the urban system towards compatible states of equilibrium characterized by appropriate and innovative use of resources and of energy in particular. The integration between tourism development goals and urban planning targets would maximize positive aspects of tourism and minimize the impacts that it generates the city's organization.

Considering the present challenges that cities have to face, and first of all the adaptation to climate change in order to implement urban resilience (Colucci, 2012), the emerging paradigm of a “smart city” could be an opportunity to promote an effective change in the use of cities both at a social and an administrative level. The smart city concept seems to highlight that, from a town planner's point of view, the actual challenge consists in making cities more efficient referring to the quality of services, the reduction of environmental impacts (polluting emissions) and the control of energy consumption, by means of innovating technologies (ICTs) capable of supporting the management, monitoring and functioning of cities. The active role of the human factor (citizens, residents, city users, tourists) is becoming increasingly important also because it can significantly affect the success or not of a city as a tourist destination and then on its level of competitiveness.

Tourism, being characterized by “transversality” and “pervasivity”<sup>11</sup>, can play a strategic role of driving function able to shift the system towards urban smartness conditions that necessarily engages a physical, functional and social component of the urban system. In this sense, the “smartness” can identify a condition of possible equilibrium (between tourist demand and supply) where the city achieves widespread urban quality levels for all categories of users: residents, city users, tourists.

The change that is characterizing the current tourist demand (from tourism to “smart tourism”)<sup>12</sup> denotes an improvement of tourist behaviors and consumptions, and promotes a new model of use for the city according to the sustainability paradigm. Although sustainability in tourism is still an object of debate, at present, it refers to a new approach in tourist supply chain (transport, hospitality, entertainment) rather than to a tourist typology. The present tourist demand, however, is more careful about environmental questions making the sustainability principle one of the factors that influences the choice of a destination.

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<sup>10</sup> In spite of the global crisis, tourism has had an uninterrupted growth over the past six decades. International tourist arrivals have increased from 25 million globally in 1950, to 278 million in 1980, 527 million in 1995, and 1133 million in 2014 (UNWTO 2015). At present, tourism involves all different social levels, being a cross activity, affecting several sectors (mobility, hospitality, leisure, etc.).

<sup>11</sup> Transversality refers to the multiplicity of sectors (public and private) involved in tourist development. Pervasivity refers both to the possibility that ICT offer to share experiences and emotion in real time. This deeply change in communication is emphasized during the tourism experience. Actually, tourists share their opinion and emotion on social networks that, at present, represent also the main source for the analysis of tourist phenomenon.

<sup>12</sup> Buhalis et al. (2014) defines the characteristics of a smart tourism destination referring also to tourists. A smart tourist profile is proposed in La Rocca R.A. (2014) The role of tourism in planning the Smart City, in TeMA Journal of Land Use, Mobility and Environment, Vol 7, n.3 e-ISSN 1970-9870.

In this sense, the promotion of a “sustainable destination” (i.e. zero emissions hotels, management and recycling of waste production; alternative energy applied to lighting of monumental areas and public buildings as well as to the private building sector, etc.), represents a factor of improving its attractiveness and competitiveness<sup>13</sup> of a city.

Tourism can be both a tool to activate new forms of sustainable facilities and services, at the level of supply (involving private and public sector) and as a means of affecting social behaviors, at the level of demand (social component). The spread of ICT has deeply changed the way of sharing emotions and experiences among tourists introducing a “real time” dimension in which distance is almost dissolved. This transformation inevitably affects the tourist supply system chain, oriented at capturing the customers’ preferences, but at the same time, it is also a possibility in order to promote new forms of supply that can modify tourist behaviors.

#### 4 SUSTAINIBLE TOURIST MOBILITY FOR THE FRUITION OF CITIES AND REGIONS: EUROPEAN EXAMPLES

This part wants to propose some reflections about the potentialities connected with the planning of new forms of supply in order to activate virtuous behaviors able to reduce impacts of tourism mobility both at local and regional scale. In this framework and referring to the above mentioned considerations, tourism can play a strategic role acting as an accelerator of change promoting more sustainable lifestyles. Tourist demand, indeed, is evolving towards behaviors and practices that are more responsible of the energy consumptions and, then, more selective and quality oriented. This propensity requires a substantial rearrangement in the planning processes of tourist supply that need to be oriented towards the definition of new services and facilities to satisfy the demand exigencies. The need of a change in the tourism consumptions has been expressed at European level both in policies and in declarations to promote sustainable and responsible tourism. This interests mobility as the main responsible of the production of negative effects on environment and on human health. Nevertheless, the integration between development objective and safeguard exigencies is still not effective, even though some significant best practices demonstrate that limiting negative impacts of tourism is possible without reducing its positive economic effects.

In the following, the selected example identify best practices oriented to the definition of innovative forms of tourist fruition aging as pull factors for the development of destination.

##### 4.1 THE PROMOTION OF A CAR-FREE TOURISM DESTINATION IN THE ALPINE REGION

In the context of the above mentioned considerations and referring to the European context, in recent years, tourism has become one of the key elements to promote sustainable mobility on both a large and a local scale. In the first case, interventions and projects aimed at promoting car-free tourism through the use of low-pollution intermodal forms of travel (cycling, public transport, collective transports) connecting different tourist destinations inside a region. In this vision, tourist destinations are part of an equipped network that connects the different poles of attraction and its realization often activates the requalification of paths and itineraries closely connected to the territorial memory and history.

The success of this type of initiative is strongly based on two fundamental conditions.

The first one concerns the coordination among different administrative levels engaged both in the planning of transport and in regional planning, considering an integrated approach to mobility and land use to gain

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<sup>13</sup> Criteria for destination pointed out by the Global Sustainable Tourism Council propose and establish standards for sustainability in tourist destination recognizing tourism as a potent tool for both preserving resources and reducing poverty (see <http://www.gstcouncil.org>).

the objective of a real change in tourist behaviors. The second one refers to the building of an efficient information network able to spread and share objectives and implementations of the projects.

Related to this second condition, the project Alp Infonet (2007-2013) aims to promote the Sustainable Mobility Information Network in the Alpine Space. Based on the idea that the diffusion of information could improve the use of public transport rather than private, the project proposes to integrate the already available information platform in the Alpine Space by providing travelers with comprehensive information about sustainable transport modes beyond regional and national borders. The main objective is to stimulate the use of public transport to visit and to reach the Alpine Space in order to reduce the impact of tourist mobility on the environment. In the name of the Alpine Convention<sup>14</sup> and acting in a collaborative perspective, the five partner (Austria, France, Germany, Italy, and Slovenia) undertake to disseminate the objectives of the project with no discrimination in dissemination of information. This will permit them, on the one hand, to share economic advantages coming from tourist flows, on the other hand, to mitigate the impacts deriving from tourism on the Alpine region.

#### 4.2 THE "CITY MOBIL" PROJECT FOR A SMART MOBILITY

The interventions at a local scale mainly are connected with the issues of urban requalification of urban public spaces. Promoting sustainable mobility in the city deals with three main issues: 1) safety of users; 2) integration with local public transport; 3) information, reception and management of the tourist flows.

At this level, technologies seem to have a major role in supporting the success of the projects leading some scholars to talk about a "techno-centric approach" (Papa and Lauwers, 2015) focused on infrastructural innovation to promote a "smart mobility".

Self-driving cars could represent the most significant example of this typology even though they are still considered with skepticism, especially because they will not reduce the use of cars in the city although, if the use of them will really spread, it will surely revolutionize the way we drive and use the car.

Cybercars belong to the same typology and are utilized also for a tourist target. They are electric driverless minibuses, connected to a sophisticated device that assures security and reliability of the displacement. They could be used for tourist displacements in urban context utilizing specific and reserved path.

At present, this kind of vehicle is the focus of the European project "City Mobil" aimed at testing this technology in some pilot cities. The city of Brussels is testing the possibilities of creating an automated shuttle system to connect the main tourist attractions. One limit of the project, apart from the high cost of the vehicles, is the lack of rules that can insure the use of cybercars also from a legal point of view. Until now, the Highway Code regulates the circulation of cars, pedestrians and cycles and does not consider automated vehicles. Some experts envisage their use as complementary to the supply of local public transport, especially for tourist use.

#### 4.3 THE SEEMORE PROJECT: NEW PERSPECTIVES FOR TOURISM CONSUMPTIONS

Integration tourism-transport aimed at promoting more sustainable forms of displacement to visit destinations is the main objective of the SEEMORE (2013-2015) project (Sustainable and Energy Efficient Mobility Options in tourist Regions in Europe) based on the idea that it is possible to integrate tourism within the general planning of displacements. According to this main concept, the SEEMORE project aims at promoting sustainable mobility in tourist destinations. It refers in particular to eight coastal tourist European

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<sup>14</sup> The Alpine Convention is an international treaty between the Alpine Countries (Austria, France, Germany, Italy, Liechtenstein, Monaco, Slovenia and Switzerland) as well as the EU, for the sustainable development and protection of the Alps. (<http://www.alpconv.org>).

regions<sup>15</sup> where interaction between visitors and mobility has been implemented by the definition of a set of local actions: mobility information packages for tourists; communication and awareness-raising campaigns; improved sustainable mobility options; integrated products for leisure and mobility; integrated planning processes taking the needs of tourists into account.

The centerpiece of the project is the cooperation among stakeholders, civil and transport administrations, as well as the integration between tourist and transport information by the use of efficient and clear planning to enable tourists to visit destinations by using public transport and cycling.

The development of the SEEMORE project allows us to underline some interesting conditions that could improve the definition of active urban policies aimed at integrating tourism and transport:

- public transport should be marketed as an integral part of the holiday experience;
- cooperation between transport and tourism sector;
- the mobility of visitors and leisure transport should be an integral part of the Sustainable Urban Mobility Plan.

The first condition refers to the opportunities that the use of public transport could offer for tourists in terms of lower costs for displacements and a more integrative way to visit the destination. An audio application for smart phones could turn a public transport trip into a guided visit. For the second condition, an active cooperation between the hospitality sector and the transport sector should be activated. For instance, by the training of staff about the offers of public transport or the sale of tickets at the hotel reception, or by integration with the use of bikes among the public supply of urban services. For the third condition, the occasion given by the introduction of SUMP should be better fostered by the definition of methodologies to manage urban tourist mobility. At present, the main difficulties refer to the availability of data to measure the impacts of urban tourist flows, this difficulty could be overcome by the application of open data in defining strategies of tourist development and territorial management (Las Casas et al., 2014).

#### 4.4 POLICIES TO INTEGRATE TOURISM AND MOBILITY IN FRANCE

The report “Transport urbains et tourisme” analyzes the supply of services for tourist mobility in France and highlights the lack of integration between tourism and mobility in an urban context especially as it concerns the application and the web sites. The only case of integration refers to Paris with the application “Visiter Paris en metro”. The study concludes by stating that among the French agglomerations tourist mobility is not yet considered as an element of the global tourist supply system (fig. 8).

### 5 TOURISM AND MOBILITY: CONDITIONS FOR SUITABLE INTEGRATIONS

Tourism is still categorized as a form of mobility that is different from the others inside the city, representing in some cases, an inconvenient element for residents and regular city-users. Indeed, tourism is a factor of disequilibrium but what this article tries to state refers to the possibilities of reducing tourist impacts by the integration of this activity within the urban planning process. As mentioned above, tourism could represent a driving function to shift present cities towards more sustainable states and in this sense it represents a resource not only for its indubitable economic value as an industry. The promotion of sustainable mobility in cities adds a global value to city-life for both tourists (as a tourist product) and residents (as a better quality of urban public space). At the same time, tourist travel habits can act as a generator for global change in actual lifestyle even though a concrete integration has not yet been reached. Considering the analyzed examples some conditions emerge, acting as pull factor for the activation of possible integrations tourism-mobility.

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<sup>15</sup> The eight regions involved were: Provincia Forlì-Cesena (Italy), Choczewo, Pomerania (Poland), Dobrich District (Bulgaria); Mallorca, Balearic Islands (Spain); Limassol (Cyprus); Bohuslän (Sweden); Malta; Madeira (Portugal).

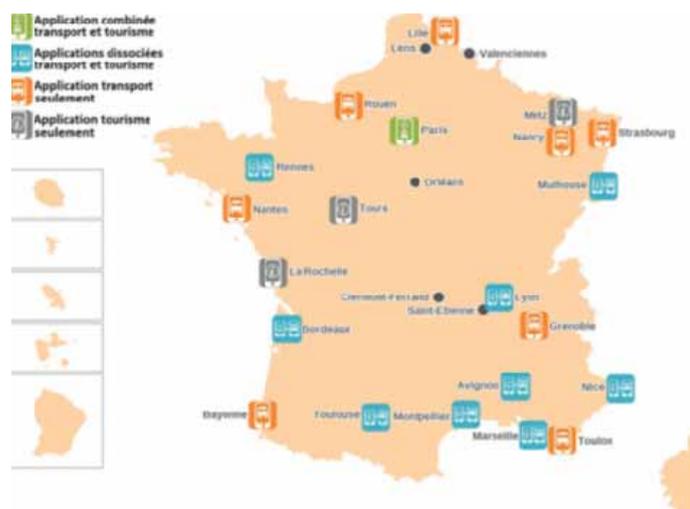


Fig. 8 The report Urban Transport and Tourism, elaborated by Cerema in 2014, shows the lack of integration between tourism and mobility services in the main French urban agglomeration. Paris (green) is the only case where integration occurs; Metz, Tours and La Rochelle (grey) are cases of only tourism applications; Lille, Rouen, Nantes, Bayonne, Toulon, Grenoble, Nancy, Strasbourg (orange) refer to only transport applications; Rennes, Bordeaux, Lyon, Mulhouse, Avignon, Montpellier, Toulouse, Marseille, Nice (blue) are cases of dissociated application transport-tourism.

— *Cooperation between public and private actors*

The first level regards administrative conditions to assure the co-operation between local authorities, transport and tourism companies, in order to obtain the integration objectives. Protocols to share data and information among public and private actors should be drafted. This could have a double benefit. On one hand, cooperation and data sharing would permit a real monitoring of tourist flows, on the other hand it would allow the definition of integrated policies aimed both at promoting and governing the urban system. Cooperation between the hospitality sector and the public administration, for instance, could activate positive interventions of requalification of urban public space, the allocation of costs and the sharing of benefits for both (public and private stakeholders).

— *Dissemination and information sharing*

Another positive effect of cooperation is the possibility to combine different products in an integrated supply (for instance a combined ticket for public transport and attractions; an audio guide for public transport or for cycling routes, a reduction in the entrance price for visitors using public transport to reach the place, etc.).

The information availability is another indispensable condition to steer tourists in making their choice of modal displacement and of routes. In this sense, it is possible to state that interventions should concentrate in disposing actions aimed at implementing the knowledge of tourists, acting on the availability of information rather than on the tourist way of moving. The design of on line platforms that are freely accessible and able to inform tourists about the possibilities of moving inside the destination using public transport seems to be one of the solutions that is more likely to be achieved. Moreover, through an appropriate authentication procedure, tourists should be able to access the wi-fi network and to connect to an urban platform.

— *Virtual and physical planning integration*

— The aforementioned “digital condition” has to be reflected in the physical state. In other words, if intelligent platforms can contribute to the diffusion and the rationalization of information, it is necessary to have an efficient network of mobility (infrastructures and services) in order to promote car-free tourism inside a destination. In this sense, the tourist component can be integrated in the urban demand and it should be considered in the design of the mobility plans at both urban and regional level. These plans should define strategic actions to improve sustainable forms of mobility, among these:

- increasing the supply of public transport;
- improving the quality of the service of the public transport (i.e. trained staff; equipped vehicles; etc.);
- caring of the design of the public transport stations;
- establishing car pooling for short and long distance journeys;
- strengthen the network of pedestrian paths within the city;
- promoting the use of bike-sharing through installations in strategic points of the city;
- institutionalizing of innovative sharing modes of displacement (i.e. taxi sharing);
- design of equipped and interconnected cycling network;
- predisposing a network of equipped parking;
- design of up-to-date and reliable signage in different languages.

These measure should be mainstreamed within tools of mobility planning at different scale, introducing a different vision to mobility planning aimed to integrate the issues of tourist mobility, in order to promote more sustainable way of moving inside the city.

## 6 CONCLUSION

This article has tried to underline how the planning of urban mobility (composed by the set of displacements to conduct urban activities) could assume a strategic role in improving urban livability. Mobility represents the sector able to increase a more sustainable way of life. In Europe, since the second half of the Nineties, the concept of sustainable mobility has tried to contrast the use of private vehicles in favor of less polluting modes of travel based on the need to safeguard public health. Nevertheless, car dependence continues to prevail, although there is an increase in the propensity to change behaviour of use (ISFORT 2013).

If this, on one hand, represents a positive trend, it is not yet sufficient to activate the change needed to face the challenges that our present cities have to face (climate change, energy and water saving, dependence by fossil energy, etc.) and also considering that vehicular mobility is the biggest culprit regarding urban pollution and thus global warming. The contribution that some forms of mobility, more compatible with environmental requirements, can provide was also shown by the increasing interest of the industry proposing "green engines" to "zero emissions", all, however, aimed at improving the efficiency of the vehicles rather than "car dependence". What this article tries to state, also by taking some European examples into account, is the consideration that in order to achieve the objectives of sustainability the search for "green technologies" is no longer enough, but the need for actions that are able to spread awareness of both users and decision-makers. In the context of these considerations, tourism as a pervasive activity could improve the change towards more a sustainable lifestyle acting as a driving function to promote alternative ways to use the city. In this sense, it is no more an agent of disequilibrium but an accelerator to change mobility behaviors. The "smart city" concept, even though its difficulties need to be clearly defined, can contribute towards the changes needed, but a holistic vision is needed to be efficient. A smart city approach should aim at improving the quality of urban life through the integration between technology components and social exigencies. The considered examples showed that transformation is based on a collaborative approach in order to activate measures and interventions aimed at improving livability and a better quality of life. At the same time, the involvement of citizens and city-users within the process of urban transformation has to be achieved. The potentialities of tourism as a key function to activate new forms of sustainable facilities and services, at the level of supply (involving the private and public sector) and as a means of affecting social behavior, at the level of demand (social component) should be investigated and integrated more successfully within the global process of urban transformation planning. At the end of these reflections, further context conditions that could act as lever of changing could be

indicated in order to define direction toward suitable change more attentive to the emerging exigencies of cities. These conditions refer to:

- integrated approach to the mobility issues by a general renewal of the government process of urban transformation;
- intermodality that means to adopt a “network logic” at both operative and planning level;
- implementation of investments programs aimed at improve the ecological networks and local services related to urban planning;
- improving the diffusion and application of urban policies aimed at supporting soft mobility;
- adopting more integrated approach oriented to the best use of technology for improving quality of urban life;
- innovation of the government process, in terms of territorial integration, transparency and participation.

Acting on these different “component of the change” and considering the factors occurring to adopt sustainable mobility seem to be the way to shift cities towards better state of urban livability.

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## IMAGE SOURCES

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