

TeMA

Journal of
Land Use, Mobility and Environment

The Times They Are a-Changin' and cities have to face challenges which may not be further postponed. The three issues of the 13th volume will collect articles concerning the challenges that cities are going to face in the immediate future, providing readings and interpretations of these phenomena and, mostly, methods, tools, technics and innovative practices (climate proof cities, zero consumption cities, car free cities) oriented to gain and keep a new equilibrium between cities and new external agents.

TeMA is the Journal of Land Use, Mobility and Environment and offers papers with a unified approach to planning, mobility and environmental sustainability. With ANVUR resolution of April 2020, TeMA journal and the articles published from 2016 are included in the A category of scientific journals. From 2015, the articles published on TeMA are included in the Core Collection of Web of Science. It is included in Sparc Europe Seal of Open Access Journals, and the Directory of Open Access Journals.



THE CITY CHALLENGES AND EXTERNAL AGENTS.
METHODS, TOOLS AND BEST PRACTICES

THE CITY CHALLENGES AND EXTERNAL AGENTS. METHODS, TOOLS AND BEST PRACTICES

3 (2020)

Published by

Laboratory of Land Use Mobility and Environment
DICEA - Department of Civil, Architectural and Environmental Engineering
University of Naples "Federico II"

TeMA is realized by CAB - Center for Libraries at "Federico II" University of Naples using Open Journal System

Editor-in-chief: Rocco Papa
print ISSN 1970-9889 | on line ISSN 1970-9870
Licence: Cancelleria del Tribunale di Napoli, n° 6 of 29/01/2008

Editorial correspondence

Laboratory of Land Use Mobility and Environment
DICEA - Department of Civil, Architectural and Environmental Engineering
University of Naples "Federico II"
Piazzale Tecchio, 80
80125 Naples
web: www.tema.unina.it
e-mail: redazione.tema@unina.it

The cover image is a photo of the 1966 flood of the Arno in Florence (Italy).

TeMA. Journal of Land Use, Mobility and Environment offers researches, applications and contributions with a unified approach to planning and mobility and publishes original inter-disciplinary papers on the interaction of transport, land use and environment. Domains include: engineering, planning, modeling, behavior, economics, geography, regional science, sociology, architecture and design, network science and complex systems.

With ANVUR resolution of April 2020, TeMA Journal and the articles published from 2016 are included in A category of scientific journals. From 2015, the articles published on TeMA are included in the Core Collection of Web of Science. TeMA Journal has also received the *Sparc Europe Seal* for Open Access Journals released by *Scholarly Publishing and Academic Resources Coalition* (SPARC Europe) and the *Directory of Open Access Journals* (DOAJ). TeMA is published under a Creative Commons Attribution 4.0 License and is blind peer reviewed at least by two referees selected among high-profile scientists. TeMA has been published since 2007 and is indexed in the main bibliographical databases and it is present in the catalogues of hundreds of academic and research libraries worldwide.

EDITOR IN-CHIEF

Rocco Papa, University of Naples Federico II, Italy

EDITORIAL ADVISORY BOARD

Mir Ali, University of Illinois, USA
Luca Bertolini, University of Amsterdam, Netherlands
Luuk Boelens, Ghent University, Belgium
Dino Borri, Polytechnic University of Bari, Italy
Enrique Calderon, Polytechnic University of Madrid, Spain
Roberto Camagni, Polytechnic University of Milan, Italy
Pierluigi Coppola, Politecnico di Milano, Italy
Derrick De Kerckhove, University of Toronto, Canada
Mark Deakin, Edinburgh Napier University, Scotland
Carmela Gargiulo, University of Naples Federico II, Italy
Aharon Kellerman, University of Haifa, Israel
Nicos Komninos, Aristotle University of Thessaloniki, Greece
David Matthew Levinson, University of Minnesota, USA
Paolo Malanima, Magna Graecia University of Catanzaro, Italy
Agostino Nuzzolo, Tor Vergata University of Rome, Italy
Rocco Papa, University of Naples Federico II, Italy
Serge Salat, Urban Morphology and Complex Systems Institute, France
Mattheos Santamouris, National Kapodistrian University of Athens, Greece
Ali Soltani, Shiraz University, Iran

ASSOCIATE EDITORS

Rosaria Battarra, National Research Council, Institute of Mediterranean studies, Italy
Gerardo Carpentieri, University of Naples Federico II, Italy
Luigi dell'Olio, University of Cantabria, Spain
Isidoro Fasolino, University of Salerno, Italy
Romano Fistola, University of Sannio, Italy
Thomas Hartmann, Utrecht University, Netherlands
Markus Hesse, University of Luxembourg, Luxembourg
Seda Kundak, Technical University of Istanbul, Turkey
Rosa Anna La Rocca, University of Naples Federico II, Italy
Houshmand Ebrahimpour Masoumi, Technical University of Berlin, Germany
Giuseppe Mazzeo, National Research Council, Institute of Mediterranean studies, Italy
Nicola Morelli, Aalborg University, Denmark
Enrica Papa, University of Westminster, United Kingdom
Dorina Pojani, University of Queensland, Australia
Floriana Zucaro, University of Naples Federico II, Italy

EDITORIAL STAFF

Gennaro Angiello, Ph.D. at University of Naples Federico II, Italy
Stefano Franco, Ph.D. student at Luiss University Rome, Italy
Federica Gaglione, Ph.D. student at University of Naples Federico II, Italy
Carmen Guida, Ph.D. student at University of Naples Federico II, Italy

TeMA

Journal of
Land Use, Mobility and Environment

THE CITY CHALLENGES AND EXTERNAL AGENTS.
METHODS, TOOLS AND BEST PRACTICES

3 (2020)

Contents

289 EDITORIAL PREFACE
Rocco Papa

FOCUS

291 **Logistic models explaining the determinants of biking for commute and non- commute trips in Lahore, Pakistan**
Houshmand E. Masoumi, Muhammad Asim, Izza Anwer, S. Atif Bilal Aslam

309 **A GIS-based automated procedure to assess disused areas**
Mauro Francini, Nicole Margiotta, Annunziata Palermo, Maria Francesca Viapiana

329 **Land surface temperature and land cover dynamics. A study related to Sardinia, Italy**
Federica Leone, Sabrina Lai, Corrado Zoppi

353 **Causes of residential mobility and Turkey practice**
Seda Özlü, Dilek Beyazli

375 **Project role for climate change in the urban regeneration. Reinventing cities winning projects in Milan and Rome**
Veronica Strippoli

LUME (Land Use, Mobility and Environment)

389 **Covid-19 pandemic from the elderly perspective in urban areas. An evaluation of urban green areas in ten European capitals**
Gerardo Carpentieri, Carmen Guida, Ottavia Fevola, Sabrina Sgambati

409 Transit oriented development: theory and implementation challenges in Ghana
Kwabena Koforobour Agyemang, Regina Obilie Amoako-Sakyi, Kwabena Barima Antwi, Collins Adjei Mensah, Albert Machi Abane

427 Spatial policy in cities during the Covid-19 pandemic in Poland
Przemysław Śleszyński, Maciej Nowak, Małgorzata Blaszkę

445 The contribution of a tramway to pedestrian vitality
John Zacharias

REVIEW NOTES

459 After recovery: new urban emergencies
Carmen Guida

465 Strategies and guidelines for urban sustainability: the explosion of micromobility from Covid-19
Federica Gaglione

471 Toward greener and pandemic-proof cities: EU cities policy responses to Covid-19 outbreak
Gennaro Angiello

479 Entrepreneurship in the city: sustainability and green entrepreneurs
Stefano Franco

REVIEW NOTE – Town Planning International Rules and Legislation

Strategies and guidelines for urban sustainability: the explosion of micromobility from Covid-19

Federica Gaglione

Department of Civil, Architectural and Environmental
Engineering, University of Naples Federico II, Naples,
Italy
e-mail: Federica.gaglione@unina.it
ORCID: <https://orcid.org/0000-0002-7067-7784>

Abstract

Starting from the relationship between urban planning and mobility management, TeMA has gradually expanded the view of the covered topics, always following a rigorous scientific in-depth analysis. This section of the Journal, Review Notes, is the expression of a continuous updating of emerging topics concerning relationships among urban planning, mobility and environment, through a collection of short scientific papers written by young researchers. The Review Notes are made of five parts. Each section examines a specific aspect of the broader information storage within the main interests of TeMA Journal. In particular: the Town Planning International Rules and Legislation Overview section aims at presenting the latest updates in the territorial and urban legislative sphere.

Urban patterns and their intrinsic relationships have completely changed since Covid-19. In particular, the mobility subsystem has undergone a significant change, inducing users to use "soft" such as micromobility. Micromobility is now on the rise, especially in large cities, but at the same time the lack of dedicated routes pushes researchers and technicians in the area to find solutions capable of providing rules to users.

This section examines the legislative decrees issued by the Italian government to promote a sustainable mode of travel for cities such as micromobility.

Keywords

Urban sustainability; Soft mobility; Micromobility; Covid-19.

How to cite item in APA format

Gaglione, F. (2020). Strategies and guidelines for urban sustainability: the explosion of micromobility from Covid-19. *Tema. Journal of Land Use, Mobility and Environment*, 13 (3), 465-470. <http://dx.doi.org/10.6092/1970-9870/7241>

1. Introduction

The resurgence of infections from Covid-19 and the need to respect social distancing is questioning the processes and habits of mobility companies and people. Among the many consequences that the epidemiological emergency is entailing, inevitable impacts will affect the actors involved in the field of mobility. Companies, investors, citizens and the public sector will have to rethink and reshape the mobility habits of all of us, both in terms of reducing the number of trips and changing modal preferences, favouring forms that guarantee the safety of users. One of the effects of the Covid-19 emergency falls precisely on mobility in urban and metropolitan areas which has inevitably undergone significant change. In the Review Note of previous issue of *TeMA*, the different forms of organization of local public transport were examined in terms of management costs, sanitation of vehicles, increases in rides in order to avoid gatherings in the reopening phase after the lockdown to reach urban services (Gaglione, 2020). Six months later, the uncontrolled spread of the Coronavirus has led users to use "soft" forms of mobility but also sustainable for cities such as micromobility. Confined spaces, crowding and proximity to strangers, the need to cling to supports, touched by strangers are among the main reasons that would push users to abandon metro, trams and buses, certainly posing a new research question in the scientific field on how to define the role of new forms of transport and travel solutions in relation to the achievement of urban services. The spread of modes of travel through micromobility can alleviate the challenge that large cities face today and offer a path towards more sustainable urban transport, given the difficulty in forecasting the end date of Covid-19 pandemic. The mobility of the urban system is already very complex and depends on several factors, on the movement behaviour of users (bus, bicycle, on foot, on the subway), on accessibility, and therefore, on the capability of a place to be reached and the forms of organization and structure of the transport offer offered. The rapid urbanization also foreseen by the World Health Organization to expand by more than 1.5% per year until 2030 (WHO, 2010) entails having to meet a greater demand for travel in terms of access to urban places and services, but generates also consequences such as increased traffic congestion, atmospheric and acoustic pollution on urban systems. This phenomenon implies that inevitably cities will have to implement measures aimed at spreading alternative modes of transport to the motorized one, which is still the mode of travel widely used by the population even for short journeys. Micromobility, with electric scooters and e-bikes, which are now on the rise, especially in large cities, especially where there are dedicated infrastructures and also numerous sharing mobility services. The emergence of micro-mobility companies has been well documented in recent years with companies like Ofo and Mobike in China and Citi Bike. In 2018, this micro-mobility trend was re-energized with the emergence of the shared and dockless electric scooter (e-scooter for short), pioneered by Lime and Bird in the US. Micro-mobility as a concept developed in research work on the new mobility paradigm (Sheller, 2011), and was subsequently revisited by other researchers (Brunner et al., 2018). It is an increasingly term used in the scientific literature concerning urban mobility (e.g. Clewlow, 2019, McKenzie, 2019), but often giving it a vague definition. In general, micro-mobility refers to shorter distance journeys for personal transportation using small, light vehicles or devices, especially two-wheeled motor vehicles. Important research conducted by INIRIX Research in 2019 showed that in 25 cities in the United States it could be replaced by micro-mobility solutions, while this figure rises to 67% of car journeys in five cities in the United Kingdom. The data were based on the proportion of existing vehicles traveling three miles or less, based on estimates of distance travelled by the National Association of City Transportation Officials.

INRIX also analysed over 30 million car journeys in the UK, revealing a much higher percentage of short distance vehicle travel than in US cities. This is due to a high-density population and shorter distances between destinations, making UK cities more attractive for micro-mobility solutions to replace cars. Following this research, in the cities of the Kingdom, the United States and France, such modes of travel have been encouraged and widespread, although the forms of organizations to allow the usability of a movement of this type still remain a research question today. In Italian cities, it was born after the period of the lockdown,

public transport with reduced capacity and the consequent increase in traffic due to the use of the private vehicle have led to the search for alternative means of getting around daily routes. The research commissioned by Arval entitled "The Italian scenario of urban mobility: a look to the future" has highlighted above all the growing interest in micro-mobility which, according to what emerged, is at the top of the wishes of Italians). The e-bike would have been identified as the ideal tool for commuting from home to work which, according to the research, in 75 percent does not exceed a distance of 15 kilometres. The choice of vehicle is also affected by factors related to the environment, agility and the absence of fatigue, while the lack of dedicated routes, the cost and the risk of theft represent the greatest resistance to purchase, pushing researchers and technicians of the territory to find solutions capable of providing rules to users. In short, just look at our cities to understand that bicycles, owned or increasingly shared, and electric scooters are changing urban mobility. However, the current body of micro-mobility literature does not yet include adequate studies on electric scooters. Cities have not yet reached a consensus on how to run e-scooter business in their jurisdictions based on the experience of others, however the sheer amount of travel data has outpaced the analytical capacity of these private companies. As a result, they can only make limited contributions to planning practice (Freed, 2018). The rise in micro-mobility cities, in particular electric ones, raises a new question in the scientific field and leads to rethinking the forms of reorganization of urban mobility that are combined within a new system of urban life rules (Coppola & De Fabiis, 2020; Masoumi & Shaygan, 2016), in particular of having to think about the creation of dedicated lanes, parking services for such electric vehicles and which do not generate conflicts between pedestrians and vehicles. Furthermore, the fear of getting infected, the limits imposed only on proven work needs and for the achievement of essential services has indirectly induced a cultural overturning of users on how to move even in the city, especially where the use of micromobility was a difficult progress to achieve, also thanks to the incentives that the government has allocated for their purchase. In this direction, the content of this review aims to examine the regulatory documents on electric scooters, in particular, where they can circulate and how they can be used in Italian territorial contexts.

Law 17 July 2020, n.77 (Decreto Rilancio)



The Legislative Decree May 19, 2020, no. 34, containing "Urgent measures on health, support for work and the economy, as well as social policies related to the epidemiological emergency from Covid-19" (the so-called "Decreto Rilancio") was published in the Official Gazette no. 128 dated 19 May 2020. Recently converted into law n. 77 of 17/07/2020, with amendments, of the decree-law of 19 May 2020 and published on the Official Gazette n.180 of 18-07-2020. The text contains hundreds of heterogeneous provisions ranging, among others, from construction to culture,

from taxation to school, from health to mobility, to businesses, etc. In this review, the emphasis is on the mobility system and the measures implemented in the previous issue to restart the local public transport system while in this section on sustainable mobility in particular micromobility. With the relaunch decree, the government allocated a 120-million-euro fund to guarantee the mobility bonus or bicycle bonus equal to 60% of the purchase for vehicles such as scooters, segways, hoverboards and monowheels. Art. 205 regulates the possibility of obtaining the contribution for all adults, without the provision of income requirements. The mobility bonus is single and can be used only once per person.

The beneficiary must be resident in the regional capitals, metropolitan cities, provincial capitals or municipalities with a population greater than 50,000 inhabitants. Moreover, the facilitation is also designed for the disposal of vehicular traffic in generally congested areas resulting in high rates of noise pollution. The decree grants the use of the bonus retroactively, that is from 4 May last. Therefore, those who have purchased one of the aforementioned vehicles can still have the refund provided if the residence coincides with the above requirements. But there is no need to rush the purchase as there is time until 31 December 2020. The bicycle bonus or mobility bonus consists of a refund or discount of 60% of the price with a maximum of 500 euros. This means that on a purchase, for example, of a scooter, whose average price can be around 300 euros, you can get a discount of 180 euros.

The measure implemented by the Ministry of the Environment in conjunction with the Ministry of Infrastructure and Transport aims to encourage sustainable forms of transport that guarantee the right to mobility of people in urban areas in the face of the limitations to local public transport operated by entities premises to deal with the epidemiological emergency from Covid-19.

To obtain the grant, simply keep the supporting document of the expense (invoice) and, as soon as it is online, access the web application that is being prepared by the Ministry of the Environment using SPID credentials (Public System of Digital Identity) and also accessible from its institutional website. The system will need to indicate the vehicle or service they intend to purchase and the platform will generate the electronic shopping voucher to be delivered to authorized suppliers, together with the balance to be paid for, to collect the goods or enjoy the identified service.

These provisions will remain in force only until 31st December 2020. In 2021, however, the provisions of the Climate decree will become effective again, which provides for a fund to be paid by the Ministry of the Environment equal to an additional 180 million euros for residents in the Municipalities affected by the Community infringement for Italy's non-compliance with the obligations provided for by the Community directive on air quality

Law 28 February 2020, n.8 (Decreto Milleproroghe)



The mobility bonus was the prelude on the one hand to incentivize micro-mobility, but at the same time to rethink the system of rules for the circulation of vehicles falling within the category of micro-mobility, in particular with Law 8 of 28 February 2020, published in the Official Gazette no. 51 of 29 February 2020 and in force from 1 March 2020, converted the decree law n.162 (decree Milleproroghe) with some modifications.

In order to provide a complete picture on the subject, it is necessary to outline the regulatory changes concerning the definition and circulation on the national (and provincial) territory of electric scooters. The first law dedicated to the "diffusion of electric micro-mobility" is governed by the law of 12/30/2018 n. 145, commonly known as the

2019 budget law aimed at promoting technologically advanced and sustainable modes of travel. In detail, in art. 1 co. 102, authorizes in the cities "the experimentation of the circulation on the road of vehicles for personal mobility with mainly electric propulsion", including in this category also electric scooters. However, nothing else is specified about the concrete methods of circulation, nor about the characteristics of these technological tools, a task that simultaneously relies on the regulatory authority of the Ministry of Infrastructure and Transport. Only with the decree dd. June 4, 2019, called "Testing of the road circulation of devices for electric micro-mobility", the technical characteristics required for the types of electrical devices admitted to the experiment were defined. Of greatest interest is art. 3 of the decree, which makes the circulation of any type of electric micro-mobility device subject to a specific provision by the Municipalities. The reason for this provision, to be considered deductible from the legislation itself, lies precisely in the fact that it is a real phase of preparation and study of the advantages and disadvantages of these new tools and that each Municipality, still completely in the process of experimentation at national level, has the right (and therefore not the obligation) to adopt and implement these new forms of travel. To condition this municipal approval, and therefore further aggravate the expectations of those who wish to take advantage of the scooters, even in the form of business, art. 4 provides that the Municipalities, before issuing the approval provision (whatever it may be), must map the set of possible paths for the circulation of electronic devices, which are also subject to technical prerogatives of use specified in general terms in the same source legislation since the decree itself explicitly admits for the first time the rental services of shared devices, even in free-floating mode (so-called free-floating). By free floating we mean that set of electric scooters under a common brand that stop and are available in various parts in the perimeter of the predefined experimentation area and that can be taken and used by booking and / or unlocking with a specific application on smartphone, with rates that can be based on the kilometres travelled or on the duration of the rental itself, resulting in a new organization of the characteristics of the built environment in relation to this type of urban mobility. The issue of the recent law 8 of 28 February 2020 introduces some changes with respect to the laws set out above. In particular, it introduced art. 33-bis which defines provisions on the circulation of devices for electric micro-mobility and atypical vehicles by amending art. 1 paragraph 75 of the law of 27 December 2019 n. 160. Which equated electric scooters with cycles with certain characteristics defined by the ministerial decree of the Minister of Transport Infrastructure. This law introduces the extension of testing of these vehicles, extending it until July 27, 2022 to allow the collection of information and allow evaluations for future regulation to both local technicians and researchers, providing possible solutions for their better usability within the city. It also introduces the characteristics of the electric knob and the documentary obligations: (i) the maximum circulation speed is 25 Km / h: previously the limit was 20 Km/h. The vehicle can circulate on urban roads with a limit of 50 km/h and traffic allowed for normal cycles (bicycles), but it can never exceed the speed of 25 km/h and obviously, if present, the obligation to circulate on the cycle paths. (ii) It cannot circulate on extra-urban roads if there is no cycle path and, in this case, it must compulsorily circulate in it respecting the speed limits. Furthermore, in pedestrian areas, unless otherwise indicated, it is allowed to circulate with the scooter as long as it does not exceed 6 km/h. This implies that the electric scooter must allow the setting of at least 2 predefined speed limiter levels. (25 Km/h and 6 Km/h). (iii) It must have a bell for acoustic signals that follows the construction, assembly and technical standards exactly identical to those for cycles. It must have white or yellow lights at the front, red light and red reflectors at the rear. In the absence of which from half an hour after sunset until dawn and during the day if the weather conditions require them, it will not be usable but only conductive or transportable by hand.

With regard to drivers, the law does not provide for driving licenses or licenses, however, imposing the completion of the 14th year of age and some behaviours, first, compliance with the speed limits indicated above. You must proceed in a

single row in all cases where it is required by road traffic conditions and never side by side in a number greater than 2. Minors, based on the different characteristics of greater danger of electric scooters, must wear a protective helmet. Your arms must remain free and always hold the handlebars except for any indications for turning manoeuvres. When it is necessary to turn on the lighting of the electric scooter, you will also have to wear a high visibility reflective vest or shoulder straps

Finally, other people, animals or objects cannot be transported. Not even towing or being towed by other vehicles.

The ministerial decree provides that an atypical electric propulsion device may be conducted only in some urban areas previously authorized for experimentation. Also indicating that this type of vehicle can be driven only if adults or minors in possession of an AM, A1 or B1 driving license.

The device must strictly comply with the technical characteristics set by the ministerial decree and must not circulate in the areas of the built environment and dedicated infrastructures that in many cities still struggle to be present. In case of violation, an administrative sanction will be incurred which will range from € 100 to € 400.

If the electric scooter does not comply with the characteristics indicated above, it will be verified whether it falls into one of the categories of existing vehicles based on the provisions of the Highway Code that are described in the next sheet.

Highway code



The highway code regulates the rule set out in Article 1, paragraph 75-ter for electric scooters, prevails over art. 142 of the highway code since it appears to be a special and specific provision for this medium. Therefore, if caught going with a speed exceeding 25 Km/h and higher than the limit imposed for the road you are traveling on, the sanction provided for in Article 1 paragraph 75-ter mentioned above will be applied. Instead, the penalty will be the one applicable by art. 142 highway code if the speed will be less than 25 Km/h but higher than the limit in force on the carriageway. The sanctions of the latter article will also be applied if the imposed limits are exceeded and you are traveling on a cycle path.

As for the use of the helmet, it must be "suitable" and approved by following all the indications and standards already in force for helmets used with cycles. However, being equated to a velocipede, for everything that is not specifically governed by the new rules, the current highway code for cycles will be applied, in particular Article 182 of the highway code which governs their circulation. Furthermore, the highway code defines how such vehicles must circulate within the urban system as follows: (i) Art.143: you must circulate keeping as close as possible to the right edge of the carriageway, so as not to hinder other vehicles. Furthermore, it is not allowed to circulate on the sidewalk and if required, it must be transported or conducted by hand. (ii) Art.154: As for bicycles, the direction must be indicated in case of turning with the arm. (ii) Art.173: You can use your mobile phone or any other electronic device only with the aid of a headset. This is to ensure that the hands are always free and used for the management of the vehicle.

If the electric scooter does not comply with the characteristics indicated above, it will be verified whether it falls into one of the categories of existing vehicles based on the provisions of the Highway Code and integrated by the rules of Regulation (EU) 168/2013.

The examination of these documents shows that the effects of the coronavirus has induced a change in the lifestyles and behaviours of users in moving by promoting cutting-edge modes of travel both from a technological and sustainable point of view for cities such as the spread of micromobility. At the same time, modes of movement of this type are still being tested and it is still difficult to define one's own role within the urban system. Furthermore, the challenge is still highly demanding, especially in cities where sharing mobility services are not dated, the need to define the forms of organization. The cities have not yet reached a consensus on how to manage this mode of movement in their jurisdictions which, as can also be seen from these legislative documents, are being tested and validated on the basis of the experience and best practices of other cities. The spread of these ways of moving beyond Covid-19 has positive environmental impacts for the reduction of polluting emissions and congestion of vehicular traffic. Furthermore, the overall improvement in air quality facilitates a policy of re-appropriation of places relieved by vehicular pressure.

References

Arval Mobility Observatory (2020). Lo scenario italiano della mobilità urbana: uno sguardo al futuro. Retrieved from: <https://www.arval.it/about-arval/news/la-mobilita-del-futuro-secondo-gli-italiani>

Brunner, H., Hirz, M., Hirschberg, W., & Fallast, K. (2018). Evaluation of various means of transport for urban areas. *Energy, Sustainability and Society*, 8 (1), 9. <https://doi.org/10.1186/s13705-018-0149-0>

Clewlou, R. R. (2019). The Micro-Mobility Revolution: The Introduction and Adoption of Electric Scooters in the United States (No. 19-03991). Retrieved from: <https://trid.trb.org/view/1572549>

Codice della Strada aggiornato con le modifiche apportate, da ultimo, dal D.L. 30 dicembre 2019, n. 162, convertito con modificazioni dalla L. 28 febbraio 2020, n. 8.

Coppola, P., & De Fabiis, F. (2020). Evolution of mobility sector during and beyond Covid-19 emergency: a viewpoint of industry consultancies and public transport companies. *TeMA - Journal of Land Use, Mobility and Environment*, 81-90. <https://doi.org/10.6092/1970-9870/690>.

DECRETO-LEGGE 19 maggio 2020, n. 34. Misure urgenti in materia di salute, sostegno al lavoro e all'economia, nonché di politiche sociali connesse all'emergenza epidemiologica da Covid-19. (cd. Decreto Rilancio). Retrieved from: <https://www.gazzettaufficiale.it/eli/id/2020/05/19/20G00052/sg>

Eccarius, T., & Lu, C. C. (2020). Adoption intentions for micro-mobility—Insights from electric scooter sharing in Taiwan. *Transportation Research Part D: Transport and Environment*, 84, 102327.

Freed, B., 2018, August 30. Scooter company Bird wants to offer data to the cities that host its fleets. StateScoop. <https://statescoop.com/scooter-company-bird-offering-data-to-cities/>

Gaglione, F. (2020). Strategies and guidelines for urban sustainability: the Covid-19 effects on the mobility system in Italy. *TeMA-Journal of Land Use, Mobility and Environment*, 13 (2), 265-270. <https://doi.org/10.6092/1970-9870/7096>

INRIX research (2019). Micromobility potential in the US, UK and Germany. Retrieved from: <https://inrix.com/campaigns/micromobility-study-2019/>

James, O., Swiderski, J. I., Hicks, J., Teoman, D., & Buehler, R. (2019). Pedestrians and e-scooters: An initial look at e-scooter parking and perceptions by riders and non-riders. *Sustainability*, 11 (20), 5591. <https://doi.org/10.3390/su11205591>

LEGGE 28 febbraio 2020, n. 8 Conversione in legge, con modificazioni, del decreto-legge 30 dicembre 2019, n. 162, recante disposizioni urgenti in materia di proroga di termini legislativi, di organizzazione delle pubbliche amministrazioni, di innovazione tecnologica. (20G00021) (GU Serie Generale n.51 del 29-02-2020 - Suppl. Ordinario n. 10). Retrieved from: <https://www.gazzettaufficiale.it/eli/id/2020/02/29/20G00021/sg>

Masoumi, H. E., & Shaygan, M. (2016). A Longitudinal Analysis of Densities within the Pedestrian Sheds around Metro Stations. The Case of Tehran. *TeMA-Journal of Land Use, Mobility and Environment*, 5-20. <https://doi.org/10.6092/1970-9870/3908>

McKenzie, G. (2019). Shared micro-mobility patterns as measures of city similarity. *In Proc. 1st ACM SIGSPATIAL International Workshop on Computing with Multifaceted Movement Data (MOVE++ 2019)*. <https://doi.org/10.1145/3356392.3365221>

Sheller, M. (2011). *Mobility*. Sociopedia. isa, 2011, 1-12.

WHO (2010). Hidden cities: Unmasking and overcoming health inequities in urban settings. Technical Report. Geneva: World Health Organization. Retrieved from: <https://apps.who.int/iris/handle/10665/44439>

Author's profile

Federica Gaglione

She is an engineer, Ph.D. student in Civil Systems Engineering at the University of Naples Federico II. Her research concerns the topic of urban accessibility. From August to December 2019, she served as a Visiting Researcher at the University of Aberdeen (UK) undertaking a significant amount of research regarding pedestrian accessibility for older persons.