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

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REVIEW NOTES – Urban practices

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

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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. The Review Notes are made of four parts. Each section examines a specific aspect of the broader information storage within the main interests of TeMA Journal. In particular, the Urban practices section aims at presenting recent advancements on relevant topics that underlie the challenges that the cities have to face. The present note provides an overview of the policies and initiatives undertaken in three European cities in response to the Covid-19 outbreak: Milan, Paris and Brussels. A cross-city analysis is used to derive a taxonomy of urban policy measures. The contribution discusses the effectiveness of each measures in providing answers to epidemic threats in urban areas while, at the same time, improving the sustainability and resilience of urban communities.

Keywords
Covid-19; Urban policies; Milan; Paris; Brussels

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1. Introduction

In December 2019, in the Wuhan province of China, a new form of Coronavirus (Covid-19) emerged. Since then, the virus has been spreading globally and, as of 05 November 2020, more than 200 Countries around the world have reported 71,9 million confirmed cases and a death toll of 1,61 million deaths (Template: Covid-19 pandemic data). The Covid-19 pandemic triggered both third and first world economies, causing severe disruption to society and business, especially in urban areas (OECD, 2020a).

2. Toward greener and pandemic-proof urban areas?

Urban areas have been the ground zero of the COVID-19 pandemic, with 90 per cent of reported cases (UN, 2020). They are densely populated places where people live and gather, thus at high risk of spreading the virus due to the close proximity among residents and challenges to implement social distancing (Neiderud, 2015). These conditions have generated a large debate about the future role of cities in the post-Covid scenario. In this respect, some authors have argued that large urban areas are nearly defenseless in times of unprecedented disease outbreaks (Desai, 2020) and that dense urban settlements are not compatible with the needs of social distancing (Carpentieri, 2020; Megahed and Ghoneim, 2020). These circumstances, coupled with increasing dematerialization of services and pandemic-pushed growing teleworking rates, have prompted some authors to questioning the ever-growing urban concentration model and envisioning a resurgence of rural areas as alternative and safer mode of urbanization in the post-Covid society (Cotella and Brovarone, 2020).

On the contrary, other authors have stressed the pivotal role played by cities in the Covid-19 response in terms of implementing nation-wide measures, but also in terms of providing laboratories for bottom-up and innovative recovery strategies (UN, 2020; OECD, 2020a; UCCN, 2020). Advocates of this second line of argument have seen in the Covid-19 crises an unpredictable opportunity to reshape our cities toward a greener and cleaner urban future (OECD 2020a; Lai et al., 2020; Pierantoni et al., 2020). These optimistic claims are supported by a growing body of interdisciplinary research. Synergies, indeed, has been identified between policies aimed at providing answers to epidemic threats in urban areas and policies aimed at improving the sustainability and resilience of urban settlements (Garcia, 2020; Barbarossa, 2020; Pinheiro et al., 2020). Decentralization of public facilities, prioritization of soft over car-centric mobility, hierarchization of the transport system and public services, and redundancy of public, green and open-space functions have been identified as integrated measures able to achieve both public health and city sustainability targets (Pisano, 2020; Sharifi et al., 2020).

Within this context, the present short paper provides an overview of policies and initiatives undertaken in three EU cities in response to the Covid outbreak. This is followed, in paragraph 4, by a discussion on whether these measures are (or will) promote a sustainable recovery.

3.1 Milan

With 1.4 million inhabitants, Milan is the second largest city in Italy. As the capital city of the Lombardy, one of the wealthiest EU regions, Milan is considered a leading alpha global city, with strengths in the fields of the finance, commerce, art, design, fashion, media services, research and tourism. The city has experience a sustained urban growth over the past few decades, characterized by the implementation of large-scale urban renovation projects and the development of an efficient and modern public transportation network, coupled with a well-developed shared-mobility eco-system.

On February 21st 2020, the first Italian Covid-19 case was registered in Codogno, a small town about 50 kilometers south of Milan. Since then, the virus has spread over the Lombardy region, making Lombardy and its capital the focal point of the virus outbreak in Italy. The pandemic has severely hit the city's dynamic economy and social life, reversing the long-standing growth trends that have characterized its economy, with consulting services,

finance, constructions and horeca being the most affected economic sectors. In order to provide a response to the social and economic challenges posed by the pandemic, on May 4th 2020, the city Council launched *Milan 2020*, the city's adaptation strategy to the Covid pandemic. The document was first released as a draft in early April 2020, open to observations and contributions through an online participatory process. Central to the adaptation strategy is the idea that the pandemic is generating long-lasting radical changes in citizens lifestyle and business operations and that these changes will require a strong reorganization of the city's physical and organizational assets. Therefore, city's reorganization should not merely provide a short-term operational response, but should also set the condition for improving city's readiness and resilience to current and future critical situations that could occur in the mid and long term. The first part of plan provides an analysis of the social and economic impacts of the virus outbreak. This part serves as the plan knowledge-base to set a future vision of the city. The vision encompass five main guiding principles in the fields of governance, economic development, public services, workforce and sustainability. Based on such principles, several planning and revitalization interventions are defined. One of the most important line of intervention concerns with the reallocation of the uses of roads and public spaces with the main objective to increase soft mobility supply and develop areas that allow commercial, recreational, cultural, and sporting developments, while respecting the appropriate physical distances. In this respect, the adaptation strategy envisions the development of 35 km of new bicycle lanes, the re-development of city's pedestrian paths, with new and widened pavements, and the extension of Limited Traffic Zones and pedestrian areas. On the land use side, interventions have been target at strengthening public services with attention to proximity, ensuring access within a 15-mininutes walk to essential services, balancing the differences between neighborhoods, enhancing specificities, and trying to reduce inter-district travel. Accordingly, the Municipality of Milan is cooperating with the Lombardy Region to create local services, starting from popular neighborhoods, with high population density and characterized by an older population. Other strategic lines of intervention included the adaptation of the city's *Time and Hours Plan* to a different schedule for public services especially for social and educational services and productive activities, in order to avoid overlaps in entry and exit times, regulate the demand for mobility and facilitate physical distancing, identifying timeslots reserved for the most vulnerable groups. A further line of intervention concerned with the simplification, expansion and acceleration of digital services available to the citizens in order to reduce the needs to travel and contain physical contacts between public servants and city users. Finally, the plan intends to support both business and household economic recovery by providing e.g. microenterprises financing services, social rental services and facilitated access to credit. A dedicated section of the strategy is also devoted to skills redevelopment, targeting individuals that have lost their jobs due to the current crises.

3.2 Paris

Paris is the capital and most populous city of France, with an estimated population of 2,148,271 residents. Paris is one of Europe's major centers of finance, diplomacy, commerce, fashion, science and arts. While its historic center is one of the most popular destinations in Europe, the recent expansion of its outskirt areas has been characterized by a poorly regulated development, coupled with inadequate infrastructure provision and consequent social and economic exclusion.
Paris has been strongly affected by the virus outbreak, with tourism, leisure and mobility being the economic sectors suffering the most. At the same time, the pandemic was an eye-opener to city administration and an occasion to put forward an ambitious strategy started in 2014 and aimed to decarbonize city's economy and make Paris a healthier city. Since 2014, the year of the first election of Mayor Hidalgo, Paris went through a series of policies that banned the most polluting vehicles from entry to the city, freed the quayside of the Seine from cars, and regained the space of the streets for more trees and pedestrian space. This process of pedestrianization of the city was fostered during the Hidalgo campaign for re-election 2020, *Paris en Commun*. This campaign manifesto has been relaunched as a post-COVID strategy, introducing the concept of a "15 minutes city", in which citizens' basic needs, such as work, shopping, health, or culture, should be available within 15 minutes of their home. To meet this aim the city has implementing a coordinated mix of land use planning and urban design measures such as the relocation of schools, health centers and other public facilities, the renovation of urban public spaces and the expansion of the city's network of public housing into wealthier areas. This urban design measures have been coupled with soft mobility measures aimed at making cycling and walking an attractive mode of transportation. In this regards, the most evident measure proposed is the extension of the urban bike network that connects the city center to the suburbs. This network was already under examination before the COVID pandemic, but its design has been accelerated and proposed as an emergency measure in order to allow more people to commute using the bike across Greater Paris. In total, more than 50 kilometres of lanes - normally used by cars - have been reserved for bicycles. Among them are the Avenue de la Porte d'Orléans, Avenue du Général-Leclerc (on the southern section), the Étoile tunnel and Porte Maillot. In addition, 30 streets have been designated pedestrian-only, in particular around schools, to avoid large groups of people gathering on sidewalks.
Beside these structural interventions focused on the urban built environment, the city has put in place several measures in the social welfare domain. In this respect, Paris developed a plan to support businesses, low-income families, cultural actors and associations, providing different forms of aids such as direct economic support, rent relief support, food aids, municipal taxes relief programs and discounts on the purchase of public transport subscriptions. The city also acted as

"enabler" for private citizens and NGOs that want to help other citizens in need by creating an online platform that is helping people in need to connect with citizens willing to assist them. Finally, as for many other EU cities the Council of Paris has re-designed its city's time-plan, rescheduling the opening hours of public services in order to reduce congestion and mass gathering.

3.3 Brussels

Brussels - officially the Brussels-Capital Region - is a region of Belgium comprising 19 municipalities, including the City of Brussels and has an urban population of 1.2 million inhabitants. It grew from a small rural settlement on the river Senne to become the de facto capital of the European Union, as it hosts a number of principal EU institutions, including the European Parliament, the Commission and other administrative, legislative and executive EU institutions and agencies. As one of the top financial centers of Western Europe, it's economy is largely service-oriented and dominated by regional and world headquarters of international companies though it still does have a number of notable craft industries.

Brussels have been severely hit by the Covid pandemic with consultancy, horeca and commerce being the most affected sectors. More than one in four workers have been put on temporary unemployment since March 2020, while the city GDP is expected to shrink by 8% this year. Furthermore, the effect of the pandemic has also been felt unequally in Brussels, where infection rates have been two or three times higher in poorer, cramped neighborhoods than in richer, greener ones.

In contrast with the city of Milan that has articulated an organic city adaptation response, Brussels response to the Covid-19 has been relatively fragmented and characterized by a number of sectoral policies regulating different aspect of the urban life. These measures have been issued by the City Council between March and October 2020, targeting specific policy domains such as mobility, social welfare, land uses and public services. In particular, measures in the mobility domain have been the focus of the city administration. When confinement was imposed on 19 March, the immediate priority of Brussels authorities was indeed to encourage social distancing by giving more space to cyclists, pedestrians and shoppers. In this respect, the city started the construction of dedicated bike lanes in the capital – infrastructure that has been increasing in recent years but still lags behind cities in Flanders, the Netherlands, and Denmark and elsewhere. In particular, from May to November 2020 over 40 kilometers of new, dedicated cycle paths were developed. Even Rue de la Loi, one of Brussels' most congested streets that snakes past the Belgian parliament and the European Commission headquarters, got the bike lane treatment in May. Dedicated bike lanes and fewer cars on the road has led to an explosion in bike use – up 44% on the previous year in early September. Another important measure in the soft mobility domain concerns the extension of pedestrian areas in the historic city center. Since September 2020, the so-called "Pentagon" area has been divided into different residential areas where quality of life and safety are priorities and where the maximum speed of 20 km/h is maintained. In this way, the city created more space to respect the physical distance rules. The City of Brussels has decided to adjust this temporary measure in order to be better suited to residents and traders, but also commuters, visitors, customer. A participatory process has been also launched in September 2020 to review the impact of the adopted measure and to ensure that all city users are heard in this project.

The city has devoted increasing attention to the recovery of commercial, leisure and horeca activities and has developed in May 2020 a dedicated recovery plan. Beside financial aids and incentives, bars, restaurant and café have been allowed to expand their terraces onto sidewalks and even close roads in some areas.

Finally, the city has created a special structure, the Social Action Unit COVID (CSAC), to assist the inhabitants of Brussels who were materially, financially and psychologically affected by the Covid-19 crisis.

4. Discussion and conclusions

As Covid-19 spreads across the world, cities have become epicenters of the pandemic, amplifying the spread and transmission of infection, with their dense population and transport networks. At the same time, cities have become catalyst of sustainable recovery. Many examples of good practices taking place in cities across the word are captured by dedicated and constantly-updated reports of international organizations such as WHO (2020), UN (2020) and OECD (2020a) and UCCN (2020). This contribution provided a focus on Europe and examined policy response to the Covid-19 epidemic in three cities.

A cross-city analysis of measures implemented in the cities under investigation can be a useful exercise to derive a taxonomy of urban policy measures. This is reported below, together with some considerations on the effectiveness of such measures in providing answers to epidemic threats in urban areas while, at the same time, improving the sustainability and resilience of urban communities. Considering the social, the physical and the functional subsystems composing the city, measures could be addressed to:

PHYSICAL SUBSYSTEM

- *Expansion of cycling infrastructures*. Cycling is promoted by many cities as a recovery strategy since it can reduce pressure on crowded (and often depotentiated) public transport while allowing citizens to respect social distancing, thus lowering the risk of virus transmission. Especially in dense urban settlements, where commuting distances are compatible with the use of bike, cycling represents an alternatives solution to provide citizens with essential needs, go to work when necessary, and still perform some physical activity, even in times of pandemic outbreaks (Garcia, 2020). At the same time, the promotion of cycling in urban areas represents an essential ingredient to improve cities livability and reduce the externalities of car-oriented urban development (Ison and Shaw, 2012).
- *Improvement of walking paths / expansion of pedestrian areas*. These measures can be considered effective tools to promote sustainable mobility while, at the same time adapting the city physical environment to the new challenges imposed by the virus outbreak. On the city sustainability side, these measures can contribute to sustainable mobility targets by shifting mobility demand from private cars to active transportation modes (Li et al., 2014). On the health side, ameliorate walkability has been demonstrated an effective tool to improve public health by promoting physical activity (Frank et al., 2006). Furthermore, extension of pedestrian areas and sidewalks can guarantee enough space for safe physical distancing while favoring business reopening by accommodating longer lines deriving for lower business accommodation capabilities (WHO, 2020).
- *Extension of green and open space functions*. Environmental benefit of public, green and open spaces are well-established: they contribute to the purification of water and air climate, to the regulation and mitigation of the urban climate, and support biodiversity conservation (Chiesura, 2004). Following the pandemic outbreak, researchers have found that the virus transmission spreads more easily indoors than outdoors (Morawskaa and Caob, 2020) and that urban green urban spaces have been crucial for exercise and mental wellbeing during the stringent lockdown (Razani et al., 2020). Extension of these areas represents thus a valuable contribution to foster city sustainability while, at the same, time providing concrete spatial planning answers to epidemic threats.

FUNCTIONAL SUBSYSTEM

- *Decentralization of public facilities*. Decentralization of public facilities is considered a fundamental property to contain the spread of the virus since it allows people to be able to get the goods and facilities they need within the minimum distance from their houses, thus limiting the interaction with the other sectors of the population (Pinheiro et al., 2020). Furthermore, the decentralization of healthcare services can reduce the response time, and saving operating costs (Pisani, 2020). A balanced juxtaposition of homes and services, is thus not only a well-known urban planning strategy to reduce long-distance trips and promote active transport, but represents also an emerging tool for containing epidemic spreading.
- *City time planning*. These measures might provide a valuable contribution in limiting social contacts and mass gatherings at facility sites as well as through the journey to reach such facilities. Furthermore, if coupled with opportune mobility and land use interventions these measure can also provide value in reducing traffic congestions during peak hours. However, the possibility to extend these measures in the long term might result problematic.
- *Improvement of IT infrastructures and digital services*. These measures can generate positive co-benefits: the digitalization of public services can indeed reduce the need to travel while at the same time contain physical contacts between public servants and city users. Furthermore, IT technologies can also provide a fast and concrete response to citizen's needs. Investments in this domain should be thus certainly encouraged.

SOCIAL SUBSYSTEM

- *Household / small business economic support.* The pandemic crises has exacerbated the existing social inequalities while severely affecting cities economy. Measure aimed at provide households economic, social or rental support as well as measures target at provide relief to most affected economic sectors have been implemented in all cities under investigation. While undoubtedly necessary, these measure, if not integrated in a wider urban economic recovery strategy, can be considered only effective in the short term. Their impacts on cities sustainability and resilience is hard to demonstrate.
- *Human capital development*. According to OECD (2020b), the global pandemic is triggering substantial changes in the labor market. Accordingly, it is essential for governments to help workers transition to the post-Covid 19 economy. These measures are highly recommended by international organizations as they provide the ground for fostering citizens' resilience to current and future disruptive events.

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