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Scenarios for a Post-Pandemic City: urban planning strategies and challenges of making “Milan 15-minutes city”

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Abstract

This Covid-19 pandemic has put a strain on many developed world global cities, especially those with high population densities and high level of connectivity; European cities such as Milan, Paris, London, Madrid and Barcelona among others have experienced major outbreaks. Many cities are therefore experiencing a moment of global rethinking. In a few years, we have gone from an idea of extreme density that has led to the gentrification of megacities with ever smaller living spaces to completely antithetical proposals, such as the idea of "the 15-minutes city" where all services can be reached with a minimum travel time. Within this context, this paper aims to provide an overview of this concept and its discussion and application on the case of Milan, by conducting a desk research and analysing the official reports and documents. This paper discusses that the core idea of the 15-minute city is not new, as it can be traced back to the concept of Clarence Perry's "neighborhood unit" in the early 1900s, as a self-contained residential neighbourhood, where essential services are accessible by walking distances. In the case of Milan, the "2020 Adaptation Strategy" confronts the second phase of the pandemic (after the major lockdowns in 2020) and makes references to creating a '15-minute city', by redefining the spaces in neighbourhoods to meet the basic needs of its residence.

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1. Introduction: Exploring immediate impacts of the pandemic on cities

The Covid-19 outbreak occurred in an era when cities were already experiencing a profound process of change, considering emerging potentials and new challenges, such as climate change, digital transformation, sustainable mobility, regeneration of degraded areas, redefinition of public spaces, social inclusion, and integration policies. However, the immediate crisis caused by the pandemic has had significant impacts on people's lives in general and

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has therefore imposed immediate changes on spaces of living, working, leisure and travelling, whether it is private or public space (see Honey-Rosés et al. 2020). Therefore, fear of crowds, social distancing, teleworking, and lockdown restrictions on commuting have currently changed the ways of living in general, as well as the structure and configuration of cities. The first changes were rapid, such as limited traveling, dividers in supermarkets, signs on floors or balconies converted into spaces for social interactions. However, many other changes, ranging from building materials to urban mobility, will be the foundation upon which post-coronavirus cities will rest. Living under the current pandemic restrictions, neighbourhoods are gaining increasing attention, due to the importance of this spatial unit to satisfy the essential needs and services of its residents. This still-ongoing pandemic has put a strain on many developed world global cities, especially those with high population densities and high level of connectivity; European cities such as Milan, Paris, London, Madrid, and Barcelona among others have experienced major outbreaks. Florida et al. (2020) discusses the potential impacts of the pandemic on cities and introduces four main forces that may lead to long-lasting transformations: (i) social scarring; (ii) the imposed ways of working, shopping, and residence during lockdown; (iii) the necessity to secure the built environment against the future health and climate emergencies; (iv) changes to urban built form, real estate, design, and streetscapes. The consequences of this critical era highlight a series of new key issues, which can only be overcome by implementing innovative strategies to reinvent and adapt some traditional functions to the new situation. There are some fundamental aspects on which it will be necessary to consider from now on. First, greater attention to the environment and the quality of life in general, followed by a more intense use of innovative technologies. The control of the territory can be delegated to ensure compliance with social distancing. Another important goal to be achieved in a short time concerns the reworking of individual and public mobility from a smart mobility perspective that ensures more excellent monitoring of movement flows. The health crisis has imposed a change of mentality, a cultural leap on planners and institutions, and citizens. In other words, it is a collective and inevitable process that has digital resilience at its centre, because only through broader use of new technologies will our cities in the future be less fragile and able to react to traumas and difficulties to resist shocks. From a design perspective, city planners and designers should consider tactical urbanism, as a short-term and low-cost actions for long-term and effective changes, which is mainly citizen-led (within a neighbourhood community) but can also be initiated by government entities (Pfeifer 2014). Many cities are experiencing a moment of global rethinking. In a few years, we have gone from an idea of extreme density that has led to the gentrification of megacities with ever smaller living spaces to completely antithetical proposals, such as the idea of "the 15-minutes city" where all services can be reached with a minimum travel time. Within this context, this paper aims to provide an overview of this concept and its discussion and application on the case of Milan, by conducting desk research and analysing the official reports and documents. The paper is therefore structured in four main sections: the introduction is followed by a review of the literature on the origins and current challenges related to the concept of the 15-minutes city; the third section focuses on the case of Milan and discusses some of the pandemic adaptation strategies introduced by the municipality; the final section provides a discussion of the necessity to rethink the design of our cities with a focus on neighbourhoods and seriously considering the strategies and guidelines provided in the vision for the "15-minutes" city.

2. The 15-minutes city: origins and current challenges

The current Pandemic is transforming and will transform both physical and social functions of space in our cities. Many local administrators, architects and urban planners are already looking for new design suggestions capable of guiding the urban development of the near future. One of the proposals that immediately caught public attention is the "15 minutes city", proposed by the mayor of Paris, Anne Hidalgo, and then adopted in other cities such as Milan, in the document "Milan 2020 Adaptation Strategy". Based on this concept, each neighbourhood should provide the fundamental services and main functions for working, supplying, caring, learning and leisure within a 15-minutes slow mobility distance (walking, cycling, etc). The idea of the 15-minute city is based on the principles of New Urbanism and transit-oriented development and it is rooted in the concept of the "neighbourhood unit" introduced by the American planner Clarence Perry in the early 1900s (Perry, 1929). In the United States, in the period following the First World War, numerous sociologists had affirmed the need to reconstitute "primary groups", understood as aggregations of families that formed the basis of the social organization, in close relationship with their territory, in a socially deteriorated communities in large American cities. This could happen by restructuring the suburbs of large cities according to "neighbourhood groups", capable of restoring the historic sense of solidarity and mutual social

control found in village communities (Patricios 2002). The opportunity to translate these ideas into concrete achievements was presented in 1922 by the Russell Sage Foundation's promotion of the New York Regional Plan. Accordingly, Perry modelled the Forest Hill Gardens neighbourhood, designed by Frederick Law Olmsted, and summarized the characteristics of this neighbourhood in six principles which he expressed in 1929, in the seventh volume of the New York Regional Plan, with the "neighbourhood unity formula". The six principles included dimensions, boundaries, open spaces, institutional places, local shops, the internal road system. Perry proposed an ideal dimension for the neighbourhood unit based on successive approximations, mediating between the school's users (1,000-1,600 students), a reasonable walking distance and a suburban residential density (80–95 people per hectare). He finally opted for an area of about 60 hectares, in which a circle of 400 meters in radius could be inscribed and which would house about 6,000 inhabitants. It also adopted a green standard of 16 square meters per inhabitant, divided as follows: 3 square meters (19%) for children's playgrounds, 5.5 square meters (34%) for similar equipment for children, 2.25 square meters (14%) to tennis courts, as many to public gardens and finally 3 square meters (19%) for small green areas and variously equipped spaces. The collective facilities included an elementary school, a library, a community centre, and a church. Finally, according to a standard commonly accepted at the time, there was a retail store for every 100 residents, according to a standard commonly accepted. Fig. 1 is a sketch published by Perry in 1929 that illustrates the relationships between the residential components of a neighbourhood and the uses that could be easily explored on foot.

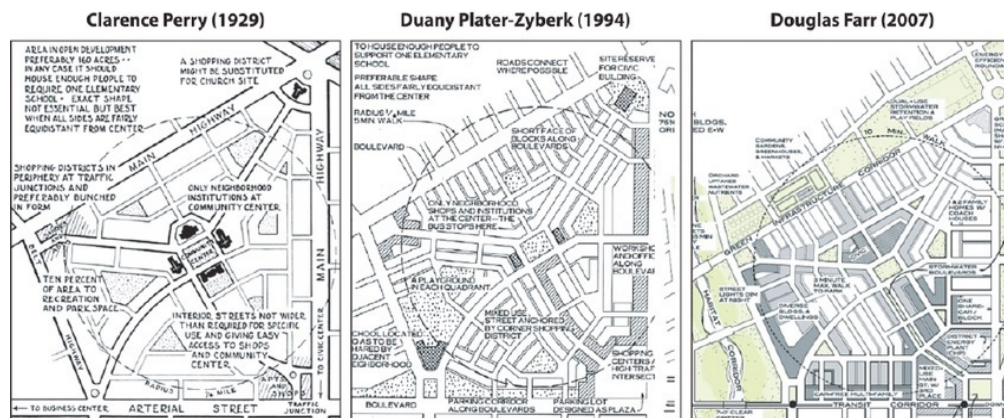


Fig. 1. The evolution of the neighbourhood unit concept (different scale). Source: (Farr 2007)

The neighbourhood unit model inspired the urban planning of many post-war British and American cities (Patricios, 2002a; Duany et al. 2009). Following Perry's study, the concept of neighbourhood unit was renewed by Andrés Martín Duany and Elizabeth Plater-Zyberk, founders of New Urbanism. In addition, Douglas Farr, in 2007, presented the concept of a sustainable neighbourhood (Fig. 1). More recently, it seems that the new "15-minutes city" concept tends to adjust Perry's principles of "neighbourhood unit" to the contemporary world, borrowed from Howard's idea of the Garden City which, in the light of the current need of sustainable and urban green, it is less utopian than in the past. The "15-minutes city" is therefore an approach to urban design that aims to improve the quality of life by creating inclusive neighbourhoods where a resident's basic needs can be reached in 15 minutes on foot, bicycle, or public transport. One of the key aims is to build a more accessible city and improve the 'walkability' of the neighbourhoods. On this matter, many scholars have discussed the relationship between built environment, walkability, health, and quality of life (Lovasi et al. 2011). The key theorist behind the vision "15-minutes City" (originally known as "la ville du quart d'heure") is Carlos Moreno, a professor at the Sorbonne University in Paris and an international expert on smart cities, launching this experimentation in the French capital in collaboration with the municipal administration. His aim was to rethink the "new relationship between citizens and the *rhythm of life* in cities" and to reduce the presence of cars on the streets (Whittle 2020). With the aim to create a better urban organization, this new vision of urban living tends to create self-sufficient communities within each neighbourhood, where basic goods and services are found within a short walk or ride from home. Regarding the growing number of

teleworkers and emergence of hybrid-working (flexible working), the proposed solution is to consider dispersed office spaces and new workplace and where it is possible to create neighbourhood or condominium coworking centres (see Mariotti et al. 2021). As for the increase of public spaces, the approach is to reorganise the activities that can be established in existing infrastructures (such as stadiums, libraries, etc.), diversifying them by time and space. Green open spaces are increased by making better use of the open spaces of schools, offices, residential complexes, and universities, especially during the weekends. In this way, sociality among the residents is favoured, the quality of life in the neighbourhood is improved, congestion and pollution in the most central urban areas are alleviated and commuting phenomena are reduced. A precursor of smart cities, Moreno had already created the concept of "digital and sustainable city" in 2008 to develop later that of "liveable cities" of which he was one of the pioneers. In numerous interviews, Carlos Moreno stated that "the quality of life is the true intelligence of a city" (Moreno, 2019). This researcher's attention to deserted cities during the lockdown results from a new look, which allowed him to highlight the importance of green spaces, neighbourhood relations, proximity trade anywhere in the world. For Moreno, the city found itself "connected" thanks to the relationships between its inhabitants, finally freed from the "métro-boulot-dodo" routine. A new look, therefore, rests on proximity, time and quality of life. Proximity in which the private residence connects in a fluid and continuous way with the public space and a diversity of activities and services. For Moreno (2020a) the "city of the quarter of an hour" represents the synthesis of his studies and has made it possible to bring together three key concepts of his research: "chrono-urbanism" (the analysis of what the city offers its inhabitants about the use of their lifetimes), the "chronotope" (the close link between space and time) and "topophilia" (the sense of attachment to a place). According to this theory, each inhabitant must have five essential services within a radius of 15 minutes from the residence: work, health and well-being (access to healthcare services, wellness, sports ...), supply of essential goods (food and non-food), education and culture. Moreno states that to create a city of 15 minutes, it is necessary to "deconstruct the city" or, more specifically, to mix as many different uses as possible (Moreno, 2020b). This process stands in sharp contrast to the urban planning of recent decades, based on zoning, which divided the city into functional zones (residential areas, central business districts, shopping malls, etc.). In contrast, the "15-minutes city" supports the flexibility of urban spaces: schoolyards, parks, civic structures that can have multiple uses and provide a range of different services at different times (e.g., a school that can have a different function during the weekends). In January 2020, Anne Hidalgo, mayor of the city of Paris based her electoral programme on the key concept of "city of the quarter of an hour", understood as the "condicio sine qua non" of the ecological transformation of the city. To move around without using the car or even public transport, the mayor of Paris proposes the challenge of "100% cycle" streets, lined with plants and wide pavements. All this was accompanied by a development of urban agriculture, thanks particularly to the cultivation of unused land on the Seine. Paris is a great place to experience the 15-minute city, as it is a dense city measuring just six miles in diameter, with a history celebrated as a place for strolls and street cafes. The French proposal is not the first and only case to offer proximity and socialization solutions to address the issues of city liveability. Stockholm has formalized an urban planning program that includes the "One-minute-City" model, which combines the Parisian city of 15 minutes with the concept of a pedestrian area. The project is based on a vision: to make every street liveable, ecological, and clean, eliminating cars to make room for citizens and their interactions. A city on a human scale, where parking spaces are transformed into urban living rooms with sofas, tables, and flower beds. To encourage light mobility, special grids are also installed to park bicycles and electric scooters (O'Sullivan 2021). Another important example is Barcelona which, since 2013, has designed the so-called Superblocks, cycling and pedestrian "urban islands" that constitute the place of neighbourhood life with two main characteristics: absence of cars (and therefore traffic and pollution) and diffusion of greenery (with parks and common areas managed by the community). It is therefore considered as a promising urban model as well as public health strategy, which creates a cleaner and greener city with more public spaces (Mueller 2020).

3. Covid-19 Pandemic Adaptation Strategies: The case of Milan

In Italy, the Lombardy Region was one of first areas in Europe that was dramatically hit by the Covid-19 outbreak and lockdown restrictions were hence imposed in several months in 2020: many were forced to stay within the borders of their own neighbourhood. Accordingly, the Municipality of Milan considers the sanitary emergency as an opportunity to redesign the city spaces and urban rhythms, and it has hence outlined some strategies to adapt

neighbourhoods to the “new normal”. The municipal administration published the document “Milan 2020 Adaptation Strategy”, in May 2020, open to public contribution to develop strategies to confront the so-called “Phase 2”, represented by the radical changes in the ways of living brought by the sanitary restriction, social distancing, and proximity measures. The document was drawn up at the end of an open call, which incorporated part of the 2,967 contributions received from citizens. In this document, references are made to a new project for the “15-minutes city”, which aims at the strategic reorganization of the times and spaces of the city and has the following objectives: the redefinition of the use of streets and public spaces, the increase in cycling and walking, the rediscovery of the neighbourhood dimension, to experience the city differently, without the fear of creating crowds. Likewise, the original concept discussed in the previous section, this programme envisages creating a city where all inhabitants can meet most of their needs thanks to services located at short distance from their homes. Giving back streets to the public is also envisaged, permanently reallocating more streets for pedestrians and cyclists, and giving priority to green roofs and permeable pavements. Here, it is worth mentioning that such strategies and projects were examined and implemented in Milan even before the pandemic. For example, the project ‘open piazza in every neighbourhood’ was promoted by the municipality in 2018, towards urban regeneration and sustainable mobility and to enhance public space: new public spaces instead of redundant roads or intersections, through the implementation of light, fast and economical interventions on an experimental basis (tactical urban design). By 2019, with the collaboration of citizens, 65 open piazzas intervention proposals were received and are currently in the co-design phase. Such strategies are needed to reduce the risks of extreme heat, drought, and floods and improve liveability and health. As for the spatial dimension, the neighbourhoods are reorganized based on the idea of a city that can offer accessible services in a small space, for example more intension is reserved to local shops instead of shopping districts and large malls. The temporal dimension concerns the attempt to build a time plan for the city. The question of desynchronization must respond to the health crisis and a new way of living in urban areas. The idea that working and living can share the same spaces is also a way to rethink the flows: maintaining flexible and remote working and time shifting also to avoid crowding in public transport. In the concept of a more liveable city, this need is a desirable horizon beyond the emergency. Reconsidering the dimension of the neighbourhood, corresponding to the city reachable in 15 minutes on foot, was among the main themes introduced. To implement this project is necessary to have all essential proximity services available within small distances. Henceforth, the following strategies should be applied to make neighbourhoods truly liveable:

- Strengthening public services with a view to proximity, balancing the differences between neighbourhoods and reducing travel.
- Expansion of the temporal spaces where public and private services are provided.
- Promoting digitalisation, collaboration, and inclusion at the neighbourhood scale.
- Creating and improving local healthcare services.
- Promoting home deliveries through local and neighbourhood bases commercial networks.
- Improving the security equipment of public offices and the management of access through reservations.
- Redesigning the services developed about the best experiences of other urban realities.

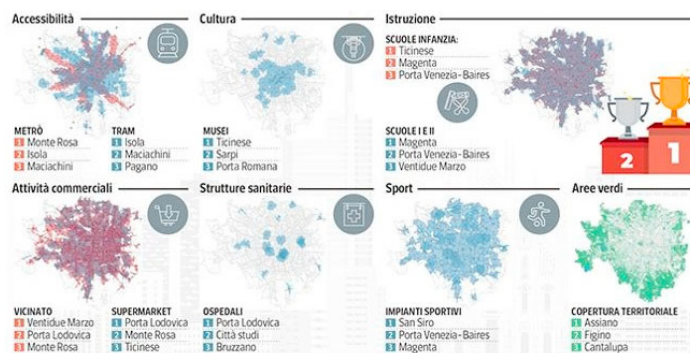


Fig. 2. Milan. The ranking of areas that have services 15 minutes away. Source: Scenari Immobiliari

Scenari Immobiliari has created a ranking of the districts of Milan concerning the reachability of certain services within a radius of 15 minutes. The ranking sees the suburbs at the bottom (except for greenery), and instead rewards the semi-central neighbourhoods[†] (Valtolina, 2020). This geography confirms territorial inequality and, in many respects, mirrors the geography of real estate prices. The study, however, does not concern the hinterland, that is, the areas where commuting exists for an hour or more. In this research, the city areas are compared on eight themes (schools, health, mobility, greenery, cultural offer, sport, etc.). The result rewards Porta Lodovica, followed by Bicocca and Città Studi and, to a lesser extent, San Siro and Bisceglie. The Isola district has the maximum accessibility to public transport, the Ticinese to kindergartens and Chinatown to the cultural offer. The “Ventidue Marzo” area has many neighbourhood shops, Porta Lodovica and Bruzzano excel for the presence of health services, sports activities characterize San Siro and Pagano contains quality properties. From the real estate point of view, Comasina and Quarto Oggiaro are the most convenient areas. (Fig. 2).

By weighing, through an algorithm, the geographic indicators considered (proximity to vehicles, health facilities, schools and universities, green spaces, sports facilities, museums, etc.), the district with the most services within a 15-minute on foot it turns out to be Porta Vigentina-Porta Lodovica. This residential area, which has a high average quality of properties, includes Bocconi University, numerous public and private medical facilities, supermarkets, and neighborhood shops. The Città Studi and Bicocca districts, also driven by university environments, are equipped with clinics, hospitals, cultural spaces, and well-made apartments. The Sarpi area follows, with an excellent cultural offer and widespread tram connections, San Siro, for public transport and sports and leisure facilities and the commercial areas of Buenos Aires, De Angeli-Monte Rosa, Ventidue Marzo, Porta Romana and Corso Magenta, all areas along the ring road, halfway between the center and the suburbs. On the other hand, the more distant suburbs are served with difficulty, from Crescenzago-Cascina Gobba to Forlanini, from Ponte Lambro to Rogoredo, from Boffalora to Muggiano, Quinto Romano, and Figino up to Roserio, above all due to the scarcity of schools and facilities for the time. free, even if inserted in greener territories. Most of the city territory appears already included in a branched service network, showing potential even in the most difficult neighbourhoods such as San Siro. The research shows that the neighbourhoods higher in the ranking are located between the center and the suburbs, along the intermediate city rings. Thanks to the numerous cultural events, the areas of Nolo and Affori also fall within well-served neighbourhoods.

As for the land price and real estate values, the most redeveloped areas are Arona-Lausanne, Filzi-Gioia, Lima-Morgagni and Corso Vercelli, where prices have increased by more than 20 percent in the last five years. The research also looks at the long term, with particular attention to the main areas undergoing redevelopment: Scalo Romana, Santa Giulia, Rubattino, Bovisa, Mind-Cascina Merlata and Bisceglie. These neighbourhoods will change the city thanks to more modern residential services, with schools under construction and housing agreements dedicated to students and the elderly. Among the neighbourhoods with a growing appeal are Niguarda, Gorla, Adriano and Bicocca in the north, Giambellino and Lorenteggio in the south, Ortica and Lambrate in the east, Farini and Bovisa in the north-west.

4. Conclusion: Planning and designing the post-Covid city

The Covid-19 catastrophe has taught us that social resilience and urban regeneration must be built starting from a new idea of living in urban spaces. Urban planning and design approaches such as the “15-minutes city”, also known as “The city in a quarter of an hour” is the alternative to the “specialized” city and implies a different system of mobility, an innovative approach to the rules of the destinations of use, another relationship between the green infrastructure and the road infrastructure. It aims to create cities on a human scale, where doing things appears simple and living there conveys a feeling of comfort. It is worth underlining that this concept is not fully new, many cities (such as Barcelona) have already applied some of these strategies.

The theme of mobility is central, in trine with climate change and health. In contemporary literature, among the post-Covid emergencies, the immediate implementation of eco-sustainable systems, such as cycle and pedestrian

[†] https://milano.corriere.it/notizie/cronaca/20_ottobre_02/0203-milano-acorriere-web-milano-cdcde98-047a-11eb-952f-bb62f0bc5655.shtml

routes, emerges (Fucigna 2020; Ricci 2020). It is also necessary to redesign public mobility: management of flows, transport and city timetables, security and organization systems to avoid gatherings, to respond to a different type of sociality but also a different production structure, still to be imagined.

Planning and designing the cities of the near future must look at the spatial communities and neighbourhoods that compose it. All areas must guarantee their residents the necessary services, which can be reached on foot or by bicycle within a few minutes. All neighbourhoods should encourage active mobility, include housing of different types, provide affordable housing, build schools, hospitals, retail shops and ensure access to sports and recreational facilities. The core principles of the 15-minute city concept are connection, community, location, health, and growth. The city of proximity requires careful planning at the neighbourhood level, giving each district the characteristics, it needs to improve the quality of life of its inhabitants. It is necessary to search for a new planning capacity, adaptive and less bureaucratic, respond to contingent needs, and work concretely on the full realization of the functional mix of the neighbourhoods.

To implement this proposal, especially in the case of Milan (Italy), simplified territorial planning and, above all, a general rethinking of the location of some collective functions, both public and private, is necessary. It is essential to reuse abandoned buildings to offer adequate spaces for culture, new forms of entrepreneurship and strengthen public health safeguards. It is not a question of creating closed, gated, and disconnected communities but restoring dignity to the different neighbourhoods that make up the city. It is necessary to create a single urban area composed of differentiated districts, connected by sustainable mobility networks, and equipped with public and collective green spaces for a polycentric and safe system of resilient urban communities.

There is already compelling evidence that the 15-minute city can work. Replacing long commute and car journeys with bicycles would reduce vehicle emissions, increase residents' health, and free up roads and parking spaces for other uses. In general, most trips to the city are short. Research on the driving habits of US families found that nearly 60% of their one-way trips are less than six miles (9.6 km) and 75% of all trips are ten miles or less. Strong Towns, a US-based planning and defence group, has drawn up a list of actions American cities could take to achieve these goals, which serve as good advice for any metropolis. To build a 15-minute city, Strong Towns recommends multiple neighbourhood schools, better access to food, better access to housing and more housing, better walkability. The C40 Mayors Agenda for a Green and Just Recovery published on 15 July 2020 by C40 Cities, an international network of cities focused on fighting climate change and promoting sustainable development, also supports the idea of the 15-minute city. Starting from the belief that cities are the "engines of recovery", it is stated that investing in their resilience is the best way to avoid economic disaster. Proposal C40 suggests that following such a model would help global cities deliver on the document's promise of equal access to jobs and urban services for all, and rebuild areas economically affected by the pandemic.

In the Covid era, where closures and transit shifts have caused city dwellers to reorient their lives and rediscover their immediate neighbourhoods, the 15-minute city could be the perfect solution. For years, consumer megatrends have supported local shopping and food, supporting neighbourhood businesses, urbanisation, and car-free lifestyles. Seen in this light, the city of proximity is not a radical turning point but rather a model for a lifestyle that many already aspire to have. The utopia is to bring the benefits to the city that make life easier in the small suburbs.

In the metropolitan area of Milan, even before Covid-19, a strong process of re-centralization had spread. There was a strong demand for social and environmental quality, which struggled to find adequate answers, both for an outdated regulatory apparatus, and for increasingly bureaucratized planning processes and the scale of territorial planning that was not always optimal. A significant rethinking is needed on some public and collective functions to have residential neighbourhoods integrated with services, greenery, offices, and factories. These functions, traditionally, have never crossed the boundaries of the central city; instead, they could generate metropolitan polarities even in the hinterland and in those areas already served by public transport. All with a mix of functions that would make it possible to increase the quality of life in the peripheral areas, relieve congestion (and therefore pollution) in the central city, and reduce commuting phenomena.

Nevertheless, the goal of the 15-minutes city is ambitious and challenging to achieve, given the rigidity of the acquired rights and the real estate system, as well as the deeply ingrained habits: however, with the persistence of the emergency from the Covid-19 outbreak, which has led to rediscovering the value of the proximity economy, and on the other hand, it has made evident the pathologies inherent in the "normality" of the past, perhaps it is easier to achieve. Beyond appearances, the aim of the project is not to rebuild a "village" in the city with some roads closed to

traffic, but to reduce as much as possible one of the most dangerous habits of our "normality": total dependence on the use of mechanized means of transport for any human activity.

Beyond the fundamental environmental reasons, the idea of the city of 15 minutes proposes a vision of a city with an excellent need for identity and sociality. However, for this to be true, it is also necessary to discuss how the city of 15 minutes is the place of short networks of daily life and the territory in which short walking distances connect with long ones, cultural or study. The city of proximity can become the contemporary expression of a cosmopolitan localism, which we have talked about for many years and which we could now perhaps begin to realize. The ongoing pandemic has raised the awareness to provide resilient methods for planning and designing future territory and to realize that we need integrated planning at the metropolitan level, capable of finding a necessary balance between core urban and the peripheral regions (small towns and rural areas).

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