From the Neighbourhood Unit to the 15-Minute City. Past and Recent Urban Models for Post-COVID Cities

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Abstract

This article critically discusses the 15-Minute City model through a review of proximity-based concepts and theories developed in the twentieth century, proposed here under the umbrella term of the Proximity City, thus tracing its historical trajectory from Perry's Neighbourhood Unit to Calthorpe's Transit-Oriented Development up to more recent time-based models such as the 1-Minute City. Furthermore, it scrutinizes the limits and potential of this model against four main challenges highlighted by the COVID-19 pandemic, namely self-sufficiency, social cohesion and inclusiveness, environmental sustainability and climate responsiveness and resilience to future health crises. In conclusion, it provides recommendations to inform future research and practice aimed at creating eco-social urban systems for post-COVID future cities.

Keywords

15-Minute City • Planning • Urban design • Proximity • Sustainability

1 Introduction

With the outbreak of the COVID-19 pandemic, the implementation of restrictive measures limited free circulation, forcing people to stay at home and walk around their neighbourhoods. These massive changes in lifestyle and habits led to a rethinking of living and working conditions and fuelled discussions about sustainable urban models for the post-COVID City, which often refer to urban proximity as a requirement to make cities more socially, environmentally and economically resilient when it comes to tackling epidemiological threats, while improving urban sustainability and liveability (see inter alia Forsyth, 2020; O'Sullivan & Bliss, 2020; Sennet, 2020). Similarly, time-based definitions have been coined or revived to label post-pandemic urban visions, such as the well-known 15-Minute City, the 30-Minute City, the 20-Minute Neighbourhood and the 1-Minute City.

According to the Cambridge Dictionary (2021),[1] the 15-Minute City can be defined as 'a city that is designed so that everyone who lives there can reach everything they need within 15 min on foot or by bike'. The 15-Minute City model was first theorized as *la Ville du quart'heure* by Carlos Moreno, the smart city advisor for the City of Paris, who proposed it as the guiding principle to make Paris a more sustainable and inclusive city (Moreno et al., 2021). This model fosters a more balanced distribution of public spaces and facilities throughout the city, support for local economic fabrics and the strengthening of social networks within urban communities while promoting an overall reduction of private transport dependency in favour of public mobility systems.

Although often presented as a new model, the 15-Minute City is rooted in concepts and theories developed in the twentieth century that, within the context of this article, we propose to be grouped under the umbrella term of the Proximity City, thus including Perry's Neighbourhood Unit (1929), Christaller's Central Place Theory (1933), Hall's Proxemics Theory (1966), Calthorpe's Transit-Oriented Development (1993) and Gehl's Human Scale City (1971, 2010) to name but a few.

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[1] In May 2021, the Cambridge Dictionary launched a poll to ask whether the 15-minute city should be added as a new word to the dictionary.

F. Alberti et al. (eds.), *Urban and Transit Planning*, Advances in Science, Technology & Innovation,
https://doi.org/10.1007/978-3-031-20995-6_15

In past decades, the application of these concepts and theories in urban planning and design projects led to outcomes that did not always meet the expectations or tackle the sustainability, resilience and inclusiveness objectives that support the idea of urban proximity as a feature of the post-COVID City.

Against this backdrop, this work critically discusses the Proximity City concept by retracing its historical trajectory, from early prototypes to recent developments in theory and practice (Paragraph 2), thus unpacking the limits and potential that could inform the eco-social transition of urban systems in a way that may also be responsive to sudden crises like the one caused by the COVID-19 pandemic (Paragraphs 3–4).

2 Evolution of the Urban Proximity Concept and the Role of the Neighbourhood in Modern Urban Planning Theories and Practices

2.1 Perry's Neighbourhood Unit and Its Further Applications

In the nineteenth century, massive industrialization processes led to increasing urban growth, widespread pollution and environmental degradation, which created inhumane working and living conditions, especially for the working class, as documented by Engels and Marx (see inter alia Cuthbert, 2007). Consequently, on the threshold of the twentieth century, criticism of the ills of the industrial city brought a new generation of thinkers to develop novel urban theories to foster the re-creation of human-scaled living conditions, based on socio-spatial models such as Ebenezer Howard's Garden City and Clarence Perry's Neighbourhood Unit (NU). The Garden City model originated in the UK and was exported to the US, where it was deployed for the preparatory analysis of the New York Regional Plan commissioned by the Russell Sage Foundation to Thomas Adams (Hall, 2002). As part of this plan, the NU was proposed by Clarence Perry (1929a) as a suitable development model for solving traffic issues and addressing social problems such as alienation, youth delinquency and lack of civic participation through the enhancement of the physical design of communities (Sharifi, 2016). The NU model implies a spatial unit with a 400-m radius, providing housing for a population of approximately 5,000–9,000 people (Fig. 1). At the core of the NU are the elementary school and public facilities, while the shops are located at the edges. To provide a safe pedestrian environment, the major arterial roads are placed on the surroundings of the NU which is equipped with an internal network of curvilinear roads allowing residents to reach civic facilities

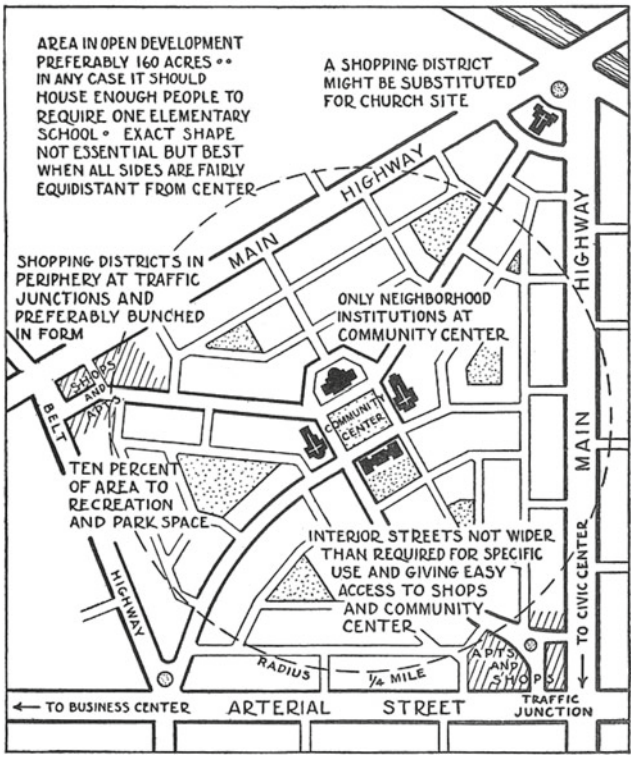

Fig. 1 Perry's Neighbourhood Unit model (Perry, 1929a)

and commercial areas within walking distance from home (Perry, 1929a; Sharifi, 2016).

Although conceived as the key mechanism for developing a more comprehensive urban reform operating at city scale, the NU was mainly applied to create residential developments, e.g. middle-class garden suburbs and social housing districts. An exemplary prototype of the NU is Radburn, a new town of approximately 5,000 inhabitants[2] planned by Clarence Stein in New Jersey in 1929 as a satellite district of New York equipped with basic facilities and administrative autonomy. Advertised as 'the Town for Motor Age' (Fig. 2), Radburn is in fact a representation of Perry's intent to balance the 'ever-growing stream of cars' providing a safe and liveable environment made up of 'residential islands' (Perry, 1929b, p. 99), with the expectation that this would generate a sense of belonging and community among the inhabitants.

Both the NU and Radburn have greatly influenced urban planning theory and practice throughout the twentieth century, anticipating planning tools and principles such as the superblocks, traffic specialization and functional segregation that informed CIAM urbanism (Panerai et al., 2004; Mehaffy et al., 2014). On the other hand, the NU was criticized by

[2] The original plan for 25,000 inhabitants was never implemented due to the 1929 financial crisis.

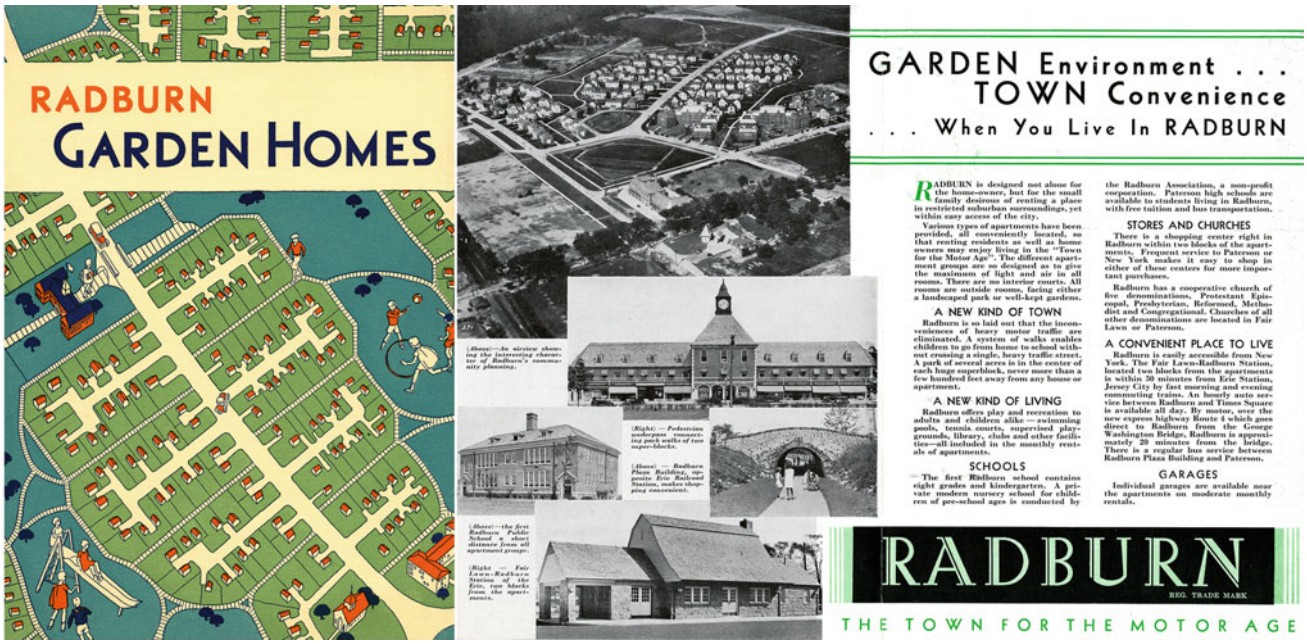

Fig. 2 Pages from the advertising booklet of Radburn, 'the Town for the Motor Age', 1929. *Source* Rockefeller Archive Center (CC by 4.0)

scholars who argued that this inward-looking model would undermine the integrity, identity and vitality of the city and foster social segregation (Jacobs, 1961; Mehaffy et al., 2014).

After WW2, the NU was adopted for the design of the English New Towns, whereas Radburn was taken as a model for several residential developments in the US, Canada, the UK and Australia. The NU also inspired Colin Buchanan's Environmental Area scheme (Fig. 3)—a pedestrian-friendly zone included in the major city road network (Buchanan, 1963)—largely applied in the second generation of English New Towns (e.g. Milton Keynes) and in several planned urban additions in North European countries. Examples of the adaptation of the NU to social housing programmes can be found in Italy, both in post-war large-scale estates developed by the national agency INA-Casa—e.g. the Quartiere Tiburtino and Quartiere Tuscolano in Rome (Caniglia Rispoli & Signorelli, 2001)—and in small-scale projects from the 1970s and 1980s. Among the latter, two neighbourhoods designed by Giancarlo De Carlo are worth mentioning for their experimental character: the Villaggio Matteotti in Terni (Fig. 4), an early example of participatory design involving the housing recipients, and the Quartiere Mazzorbo in Venice, an attempt to recreate the human scale of traditional communities in contemporary settings.

Scrutiny of the above-mentioned projects highlights several limitations deriving from Perry's NU model such as dependency on the mother city for most of their needs except for housing. Moreover, these projects often produce social enclaves, either for privileged or disadvantaged populations, and this, contrary to Perry's predictions, frequently goes hand in hand with the deterioration of the built environment and the spread of micro-crimes (The Academy of Urbanism, 2015).

2.2 Extra-Disciplinary Contributions on the Concept of Proximity and Implications for Urban Planning and Design

The concept of proximity is central to theories developed in the cognate fields of geography and anthropology, such as the Central Place Theory (CPT) and the Proxemics Theory, which have influenced urban design and planning.

CPT was formulated by German geographer Walter Christaller in 1933 (Hall, 2002). This theory is grounded on the assumption that space is isotropic, population density and purchasing power are constant and people behave as consumers. Accordingly, it theorizes that people would act rationally to minimize transportation costs by visiting the nearest location offering the desired goods or services (Terfrüchte & Flex, 2018). Translated into physical terms, it suggests a hierarchical structure (Fig. 5) from neighbourhood to district to city in terms of catchment areas for services and facilities of different calibre, although this structure should not prevent 'people from having free choice as to which of these areas they frequent and which of their services and facilities they use—provided they are mobile; hence the importance of mobility in the city or city region'

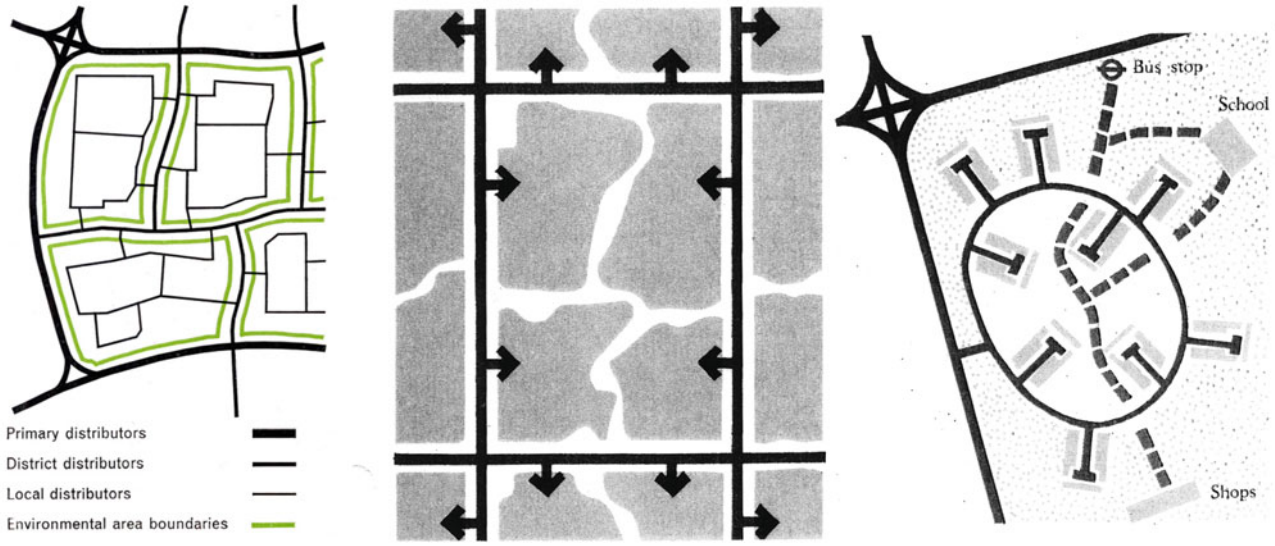

Fig. 3 Buchanan's schemes for the Environmental Area, inspired by Radburn's layout (Buchanan, 1963)

Fig. 4 The Villaggio Matteotti at Terni (Italy), designed by Giancarlo De Carlo (1975). *Photo* Giorgio Casali (https://www.facebook.com/centrostudigiancarlodecarlo/)

(Frey, 1999). CPT has had a significant impact on territorial and spatial planning throughout the twentieth century in Europe and beyond. For example, Terfrüchte and Flex (2018) highlight spatial-related influences in the fields of regional settlement development, commercial economy, mobility planning and large-scale retail, while Barton and colleagues (2006) focus on CPT's impact on the field of neighborhood planning and design.

Proximity is also inherently related to the Proxemics Theory developed by the American anthropologist Edward T. Hall in the 1960s. With the term proxemics—made up of the terms 'proximity' and 'phonemics'—Hall refers to the meanings that humans attribute to the concepts of distance and space and thus identifies four main types of space that surround individuals: intimate, personal, social and public space (Hall, 1966). Intimate space can only be entered by the closest friends and intimates; personal space is for interaction between friends; social space is where exchange with acquaintances takes place; and public space is where public relations and public speaking happen. Proxemics Theory has greatly influenced urban design and placemaking: for instance, in his work, Jan Gehl refers to

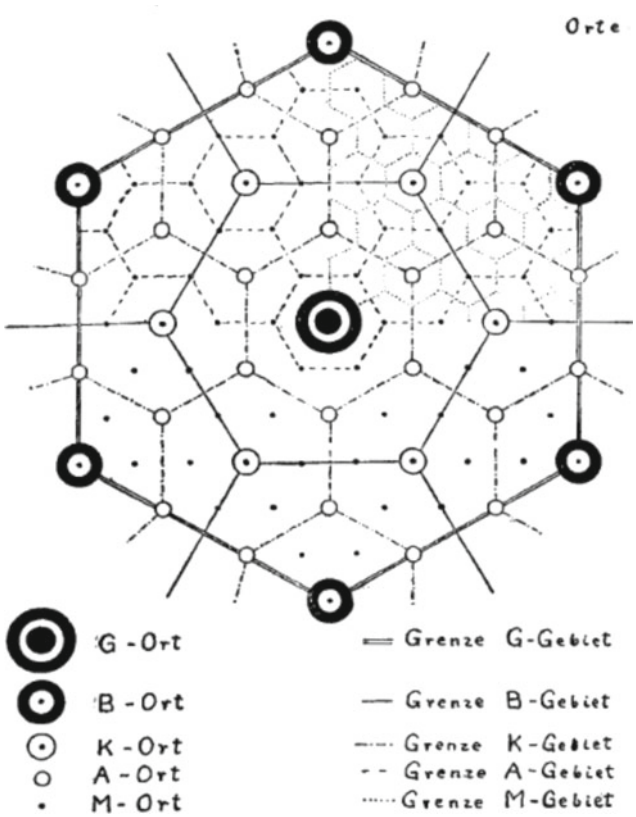

Fig. 5 Christaller's hierarchical city structure, according to the Central Place Theory (Christaller, 1933)

Hall's Proxemics Theory about space, distance and human senses to provide design guidelines for working with the human scale and applying it to urban design and regeneration projects (Gehl, 1971, 2010).

2.3 The New Urbanism and the Revision of the 'Traditional Neighbourhood'

In the early 1990s, urban proximity and the neighbourhood-scale became central themes in the international debate on sustainable development and cities due to the publication of the Brundtland Report (WCED, 1987) and the organization of the Earth Summit in Rio de Janeiro in 1992.

In the United States, sustainable urban development has been addressed through the lens of 'Smart Growth', a low-impact urban development model proposed as a solution to mitigate sprawl by supporters of New Urbanism, a movement inspired by neo-traditionalist architectural and urban theories advocated in Europe by Leon and Rob Krier (Duany et al., 2000). According to the New Urbanism principles,[3] urban planners should strive to create mixed-use neighbourhoods where different functions and facilities—such as housing, shops, workplaces, schools, parks and essential civic facilities—are integrated and located within walking distance from public transport hubs. Specifically, this idea of creating mixed-use neighbourhoods, where urban proximity and accessibility to public transportation are development drivers, is central to the Transit-Oriented Development model (TOD), promoted by Calthorpe (1993) as a neighbourhood or district within an average walking distance of 2,000 ft (about 10 min) from a transit stop and a core commercial area (Fig. 6).

The TOD model has widely influenced urban design and planning and has been put into practice internationally as part of urban renewal processes and neighbourhood developments. For instance, in Portland (USA) the TOD model has been taken as a reference for metropolitan planning since 1995 and has been key to the city's Climate Action Plan (2015) which aims to create a network of '20-min neighbourhoods' where 90% of residents can easily walk or bicycle to reach all basic daily needs (City of Portland, n.d.). A similar approach to the TOD model can be found in Melbourne, Australia, where it has been adopted by the Melbourne Minister for Planning as part of the Melbourne Plan 2017–2050 to develop the 20-Minute Neighbourhood Pilot programme, which promotes access within a 20-min return walking trip from home to 17 facilities (Fig. 7) including local schools, shopping centres, green areas, health services and the like (State of Victoria, 2019). Further examples of New Urbanism influence on North American urban planning can be found in the publication of the *Smart Growth Manual* (Duany et al., 2010) and in the involvement of the Congress of New Urbanism in the definition of the LEED certification criteria for Sustainable Neighbourhood Development (LEED-ND) (USGBC, n.d.).

Beyond its legacy, New Urbanism has been critically discussed in literature by scholars who questioned its deployment for creating market-driven new developments and redevelopments across the US that often led to gentrification and the expulsion of local residents thus producing socially segregated enclaves built within privileged areas or in low-income neighbourhoods (e.g. Hetzler et al., 2006; Smith, 2002; Talen, 1999, 2019; Wyly & Hammel, 2003).

[3] These principles are outlined in notable New Urbanism manifestoes such as the *Ahwhanee Principles for Resource-Efficient Communities* released by the non-profit organization Local Government Commission (LGC) in 1991; the *Charter of New Urbanism*, written during the first Congress for the New Urbanism (CNU, 1993); the decalogue of Smart Growth, set out by the Smart Growth Network (1998) and the *Canons of Sustainable Architecture and Urbanism*, published by the CNU in 2009 as an addendum to the Charter of New Urbanism.

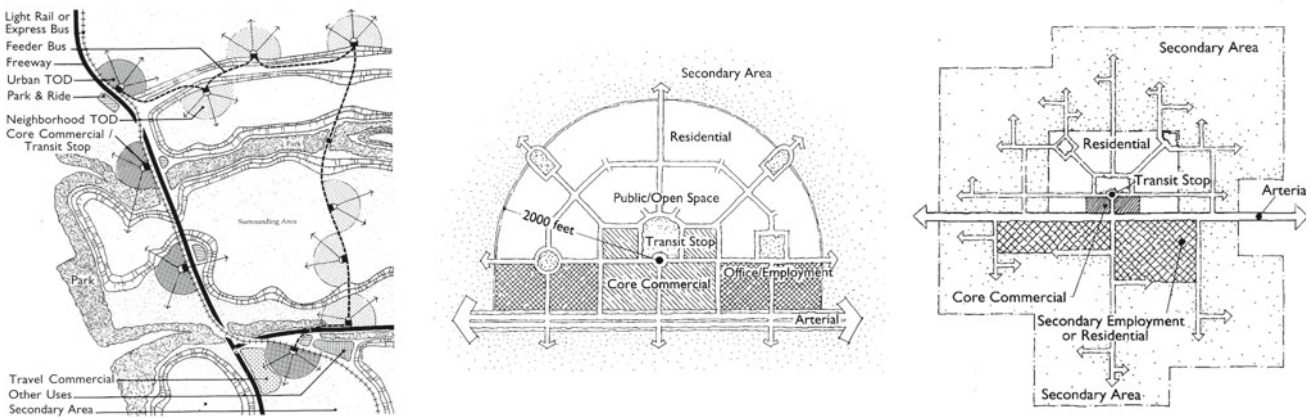

Fig. 6 Calthorpe's schemes for the Transit-Oriented Development (Calthorpe, 1993)

Fig. 7 Melbourne's 20-Minute Neighbourhood features. *Source* State of Victoria

2.4 Further Approaches to Urban Proximity as a Dimension of Sustainable Urban Models

Urban fabric density, mixed-use neighbourhoods and districts networked by a hierarchy of public transport lines are also key ingredients of the Compact City, a reference model for the sustainable city in the European tradition of urban planning studies (Burton et al., 1996). This approach was inspired by the British government's strategy for a 'new urban renaissance' developed at the turn of the century (The Urban Taskforce, 1999) and is still a key reference for EU urban policies. Another seminal example is represented by the *Ecocity. Urban Development towards Appropriate Structures for Sustainable Transport*[4] research project which identified the concept of the 'City of short distances' as a pivotal feature of a polycentric urban model, structured around a network of mixed-use city quarters with access to green areas, affordable housing and jobs, low environmental impact from transport and efficient use of local resources (Gaffron et al., 2005). Furthermore, a similar approach can

[4] This research was conducted by the Hamburg University of Technology with the financial support of the European Commission.

be found in the so-called 'eco-neighbourhoods' and 'eco-districts' implemented in several European countries, such as the Hammarby Sjostad (Stockholm) and the Bo01 (Malmö) in Sweden, the Vauban and Rieselfeld (Freiburg) in Germany, the GWL Terrain (Amsterdam) in Holland and the ZAC Le Bonne (Grenoble) in France.

3 The Proximity City in the Wake of the COVID-19 Pandemic

The 15-Minute City (or the 'complete neighbourhood') model along with concepts of urban proximity, the increase of green areas and the creation of city-wide walking and cycling networks have been reported in the *Mayors' Agenda for a Green and Just Recovery* (C40, 2020) as key measures to socio-economic policies to be adopted in response to the COVID-19 pandemic.[5] In this Agenda, Portland's strategy for 20-Minute Neighbourhoods and Mayor of Paris Anne Hidalgo's programme for the *Ville du quart'heure* are mentioned as best practices adaptable to different urban contexts in response to global challenges. As for the latter, *la Ville du quart'heure* or *Ville de la proximité* is one of the pillars of Hidalgo's second-term political programme *Paris en Commun*, aimed at ensuring full access to the main urban functions, including housing, work, healthcare, education, shopping and recreation, within neighbourhoods that can be covered in 15 min on foot and 5 min by bicycle (Fig. 8). To achieve this goal, the city has set up participatory processes to redesign existing spaces and facilities in all Paris districts, where schools should play the role of pivots in the community, similarly to Perry's NU, and become the catalysts of urban regeneration (Ville de Paris, 2021).

Within the C40 group, the 15-Minute City model has inspired Mayor Claudia López to turn Bogota into a 30-Minute City by enforcing a polycentric plan, 'where the inhabitants can live and work within a 30-min radius, in environmentally sustainable districts linked by green corridors, with priority for pedestrians and cyclists' (Alcadía de Bogotà, 2020). This plan aims to implement a still very ambitious but more realistic model than the 15-Minute City one, as people in Bogota currently spend a daily average of two hours commuting from the residential *barrios* to work.

Other cities, such as Barcelona and Milan, that subscribed to the *Mayors' Agenda*, have given new impetus during the COVID-19 crisis to projects already underway aimed at strengthening the role of neighbourhoods in providing services for citizens, inclusive public space and green areas, and in promoting active mobility. For example, Barcelona has developed a new interpretation of the 'superblock' (*Superilla*) model, which was introduced in 2016 as part of the city's sustainable mobility strategy. This implies the aggregation of several urban blocks whose streets are turned into public spaces, redesigned by means of tactical urbanism techniques and closed to the main traffic flows which are channelled to the outer superblock's perimeter—like the traffic management model first implemented in Radburn on the existing city pattern. After the successful testing of the *Superilla* in three pilot neighbourhoods (Poblenou, Horta and Sant Antoni), in 2021, the programme was extended to the whole central city with the aim of reallocating 40 ha of road space to create new pedestrian and green areas at a short walking distance from citizens' homes (Fig. 9) (Ajuntament de Barcelona, n.d.).

In Milan, a place-based approach has been applied to the *Piazze Aperte* (Open Squares) programme. From 2018, this programme has been developed by the City in cooperation with Bloomberg Associates, the National Association of City Transportation Officials and the Global Designing Cities Initiative to convert street intersections and parking lots into public spaces, involving residents' associations in the design and management process (Fig. 10). Following a public call launched in 2019, the city has collected 65 proposals for the redevelopment of community spaces within the framework of the so-called Piano Quartieri (Neighbourhoods Plan) (Comune di Milano, 2020a). In 2020, the *Piazze Aperte* program was paired with *Strade Aperte* (Open Streets), a new initiative which aims to increase sidewalkmes and bicycle lanes along the main urban routes (Comune di Milano, 2020b).

A 'hyperlocal variation, on a national scale' (O'Sullivan, 2021) of the 15-Minute City underlies the 1-Minute City, a programme launched in 2020 by Sweden's innovation agency Vinnova in cooperation with the design think tank ArkDes and tested in Stockholm (Fig. 11), Gothenburg, and Helsingborg. Here, a different approach to urban proximity has been implemented focusing on the space outside citizens' front door, with which 'you have the most regular and direct participation, responsibility, and interaction, merely propped up on propinquity' (Hill, 2020). In the 1-Minute City, the street is treated as the elementary unit of the city, to be regained as a community space through a combination of traffic-calming measures, re-greening and newly designed modular street furniture, which can be quickly assembled by residents to build basic facilities such as playgrounds, urban gardens, spaces for sitting, bicycle racks and the like (Hill, 2020). In so doing, in the long term, it aims to transform a 40,000 km national street network into living streets for the people and by the people.

[5] C40 is a network of world cities committed to achieving the climate targets of the Paris Agreement.

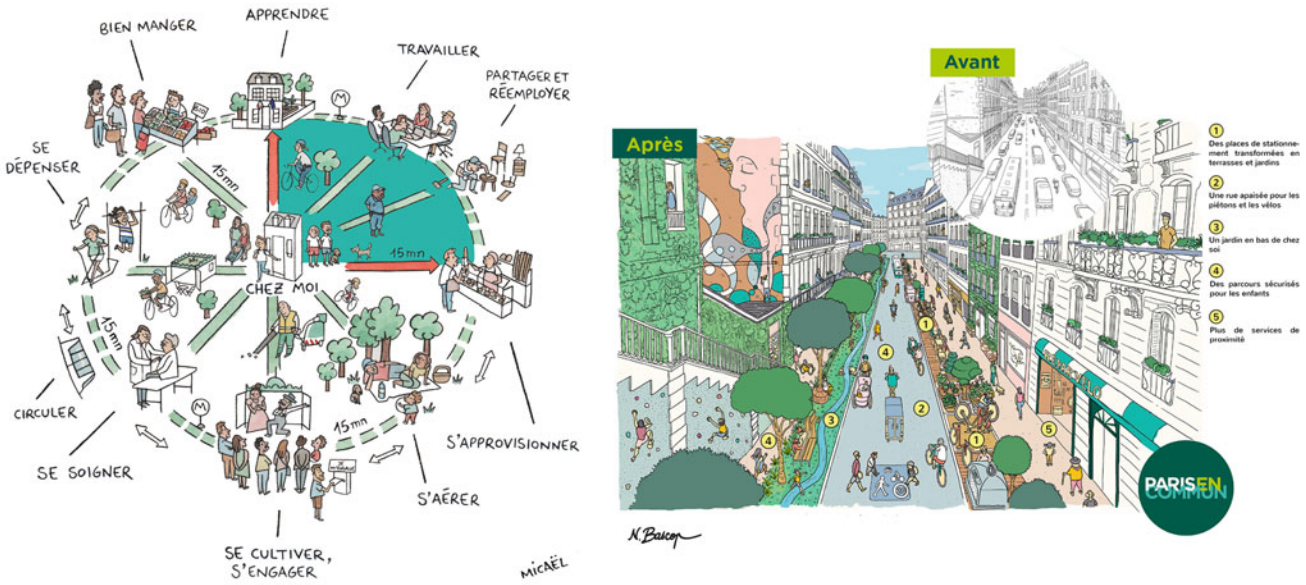

Fig. 8 The vision of Paris as *Ville du quart d'heure*. *Source* Ville de Paris

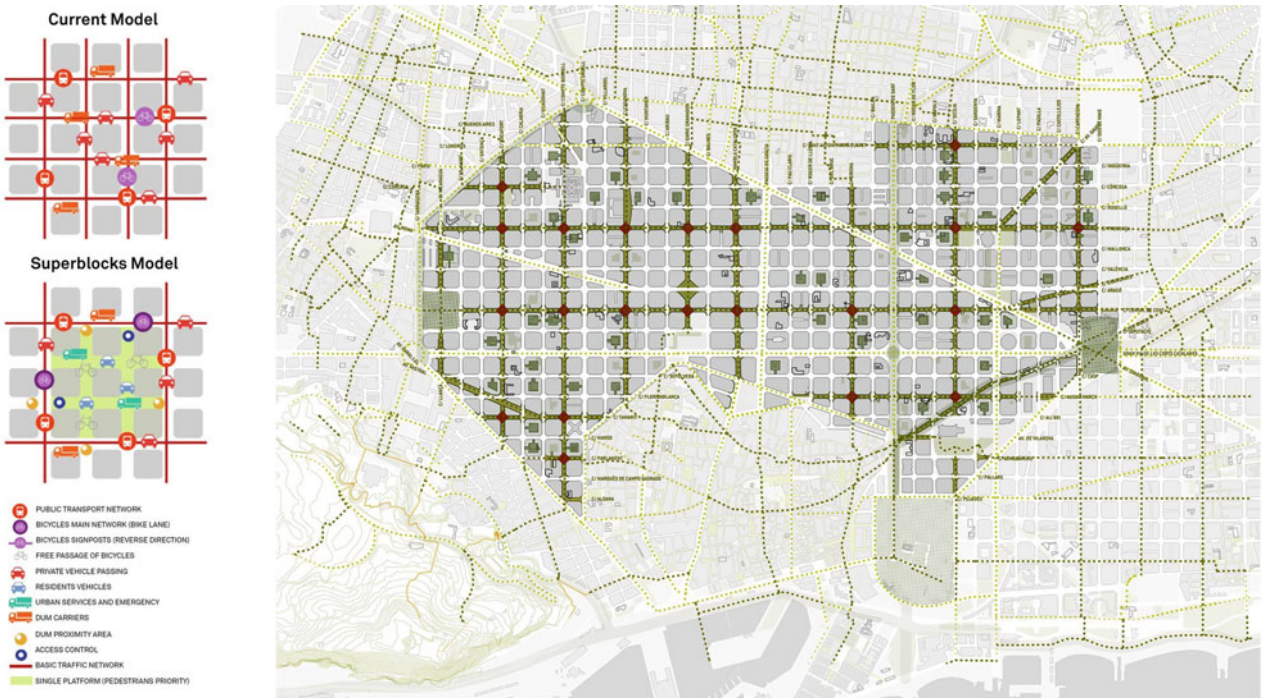

Fig. 9 Barcelona's Superblocks model and regreening plan. *Source* Ajuntament de Barcelona

Fig. 10 Piazza Bacone, an example of public space regeneration in the framework of Milan's *Piazze Aperte* programme. *Source* Comune di Milano

Fig. 11 Street furniture in Stockholm to implement the 1-Minute City. *Photo* Elsa-Soläng (https://www.facebook.com/ArkDes/photos/4012305508785954)

4 Discussion

A comparison between the characteristics of the 15-Minute City required to respond to the challenges of the eco-social transition of cities—amplified and made more urgent by the pandemic—and the objectives pursued and the results obtained by the aforementioned past experiences suggest that considering 'planning by neighbourhoods' (Mumford, 1954, p. 256) is not sufficient by itself to accomplish the desired social and spatial objectives, as per the examples discussed hereafter.

Self-sufficiency for most people's needs

This is a goal that planned neighbourhoods conceived as 'residential islands' (Perry, 1929b) failed or didn't even attempt to achieve. Mixed uses are in fact only viable in well-integrated urban systems where local, small urban 'cells' are clustered within 'larger spatial units' (Frey, 1999) and have a sufficient critical mass to ensure, at different scales, a balance between the supply and demand of public and private services: this condition reflects the Christallerian hierarchical principle to some extent. It leads to an idea of neighbourhoods with blurred boundaries within a continuous

urban fabric, albeit with variable density, that is more akin to the traditional *quartier* of historic European cities, such as Paris and Milan, than suburbs modelled like Radburn; alternatively, or additionally, this implies a polycentric system of networked districts, as driven by the TOD approach. As for the possibility of bringing work and home closer together, envisaged by *la Ville du quart d'heure* (which differs in this respect from the 20-Minute Neighbourhood), this would imply 'an economic revolution' (Sennet, 2020) eventually induced by the COVID-19 pandemic or other external factors and supported by public administrations willing to adopt new approaches to urban welfare.

Social cohesion and inclusiveness

Social and economic homogeneity is a recurring feature of planned neighbourhoods, whether it be new developments for the free market or housing estates, which usually facilitates spontaneous interaction and solidarity among neighbours, but can also bring about social segregation and increased urban inequality. As Talen (1999, 2019) pointed out, there is no evidence that the urban form of a neighbourhood could by itself engender a sense of community (as claimed, in particular, by the New Urbanism theory). Class division also affects traditional neighbourhoods due to different real estate values. There is therefore a real risk that, given the lack of incisive social policies and corrective measures for the market, more neighbourhood services could trigger gentrification processes in contradiction to the vision of a post-COVID city 'with jobs and an inclusive economy for all, resilient and equitable communities', as outlined by the C40 *Mayor's Agenda* (C40, 2020, p. 9).

Environmental sustainability and climate responsiveness

Sustainability and climate-related objectives, uncovered in the earlier models, can be fruitfully addressed through the design of new developments (as an increasing number of eco-neighbourhoods show), as well as in urban regeneration projects inspired by proximity models. Nonetheless, they refer to global challenges that cannot be reduced to the scale of the neighbourhood but push for systematic action at the scale of the city and the region. Even the shift to sustainable travel modes, a hallmark of the TODs and the 15-Minute City, is not implicit in 'planning by neighbourhoods'. On the contrary, in Perry's NU and its direct or indirect derivations (via Radburn or Buchanan's Environmental Area), the creation of safe pedestrian precincts in the middle of a superblock facilitates mass motorization in cities and has often resulted in the building of new urban developments, where car dependency is at its highest.

Resilience to future health crises

This requirement 'flags up a big issue: how to reconcile and integrate the healthy city with the green city' (Sennet, 2020), as it challenges both the idea of density/compactness usually associated with urban sustainability and the role of public transport (where social distancing is impossible to accomplish without a significant impact on service costs or prices) as the main alternative to car mobility. Its achievement by means of the 15-Minute City or similar models is therefore strictly related to the self-sufficiency rate neighbourhoods can actually provide in the fulfilment of people's everyday needs, including different forms of work. An essential item is also to ensure that citizens have access to large green areas that allow freedom of movement while maintaining interpersonal distancing. This is relatively easier to find in suburban developments, but in urban central areas, it may require a radical approach, like that implemented in Barcelona with the extended *Superilla* project.

5 Conclusion and Future Research Directions

The 15-Minute City model is currently being implemented in several Western cities. The scrutiny of the selected policies, plans and pilots presented in this article showed that they share common characteristics consisting of human-scale design, access to public transport, a mix of services and activities, environmental quality of public spaces and pedestrian-friendly streetscapes. On the other hand, it emerged that further research is needed to investigate the spatial, social and environmental outcomes of these programmes and projects in order to validate this model(s). Along this line, a comparative analysis between the case studies of Paris, Barcelona and Milan highlighted how the concept of urban proximity has been operationalized in different ways according to (i) administrative management and governance models, (ii) planning and implementation procedures and (iii) the social, economic and environmental impacts expected from the planned measures (Alberti & Radicchi, 2022). As per this comparative study, the 15-Minute City label proved to be reductive, especially in light of its implications for urban welfare and economy, once taken as the blueprint of urban transition and 'just recovery' policies, as pointed out in the discussion section.

In addition, this review points to replicability and inclusiveness issues that may affect the 15-Minute City model thus suggesting, on the one hand, the need for further studies and applications of the model in practice that account for sensorial and cognitive disabilities across different populations (e.g. the elderly), by mobilizing a diversity, equity and

inclusion approach (see inter alia Agyeman & Evans, 2003). On the other hand, the replicability of the model should be further tested, for example, by applying it (or even Bogota's 30-min variant) in cities located in the Global South and Asia. In fact, the trust placed in the suitability of this model for solving living and working issues, which originated from the pandemic outbreak in European and US cities, does not necessarily assure that it will properly work when applied to other geographical contexts.

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