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Unpacking the concept of 20 minute neighbourhoods

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Abstract

Purpose –

Growing interest in the urban design concept of the '20 minute neighbourhoods' (20MNs) has been greatly accelerated by the COVID-19 pandemic. It has been presented as a way of increasing the quality of local environments by enabling people to meet their daily needs through access to safe walking and cycling routes or by public transport. Internationally, it has captured the imagination of political decision-makers, built-environment practitioners, and communities alike, as a life-affirming post-pandemic vision, held up as achieving environmental, health and economic improvements as well as reducing inequalities experienced by many. This paper's overall purpose is to separate the ends pursued in 20MNs from means available for achieving them.

Study design/methodology/approach

An in-depth literature review was undertaken to uncover a) what are described as the desired outcomes for 20MNs - the normatively based ends which planners, architects and decision makers want 20MNs to achieve; b) the means (the mechanisms, levers, triggers and causal factors) that have to be correctly assembled and lined up for 20MNs to operate as intended; and (c), in order to avoid naive environmental determinism, the behavioural changes required to support the operation of 20MNs even where the required configuration of means can be achieved. The content analysis was conducted following guidelines offered by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) criteria.

Findings –

The paper concludes that the ambition to see the 20MNs widely woven into existing urban, suburban and rural neighbourhoods will require significant effort to ensure all that all the component parts of, and key players in, planning's place-delivery systems are aligned and mutually supportive. Even where this can be achieved, further guidance will be needed on: 1) how to operationalise the practical implementation of 20MNs, and 2) how their success can be measured.

Originality/value –

The originality of the paper lies in its efforts to discriminate between ends and means – between desired outcomes of 20MNs and the means available for achieving them. The significance of the paper lies here in this attempt to initiate a discussion about possible causal relationships between what is wanted and what would need to be done to achieve it. Without clarity about these relationships, misunderstanding, confusion, and barriers to communication, may arise across the many different organizations, stakeholder groups and actors involved. This lack of clarity could undermine trust and confidence, potentially undermining both the process and to its outcomes.

Keywords: *20 minute neighbourhoods, urban, suburban, rural, place, policy, practice, ends, means.*

INTRODUCTION

This paper is concerned with what are currently seen as the main ingredients of what are labelled as 20 Minute Neighbourhoods (20MNs). This urban planning concept, and its correlate '15 minute cities', have recently gained traction (Gower and Grodach, 2022;

O'Sullivan and Bliss, 2020; Monocle, 2020; RTPI Scotland, 2021; Allam et al., 2022). Its

appeal has been amplified globally by the Covid-19 pandemic (Marshall, 2020; Kirby, 2021).

Governments have expressed interest in a post-Covid future that is more resilient to health

and economic crises and addresses inequalities in access to neighbourhood essentials and

services, laid bare by the pandemic. Although there is no common definition for the concept

(RTPI Scotland, 2021; O'Gorman and Dillon-Robinson, 2021) and its branding and

implementation vary from locality to locality (Monocle, 2020; Improvement Service, 2021),

the underlying premise is of a place that: provides easy access to daily services and

amenities; promotes the ability to live and thrive locally (Marshall, 2020); and favours 'active'

transport such as walking, cycling and public transport (Improvement Service, 2021; RTPI

Scotland, 2021; O'Gorman and Dillon-Robinson, 2021). As documented by the UK's Royal

Town Planning Institute (RTPI, 2021) in their recently published *Implementing 20 Minute*

Neighbourhoods in Planning Policy and Practice, evidence for the effectiveness such

strategies is emerging, "improvement in air quality, improved health outcomes and move

from private car usage…following active travel and low traffic interventions".

The 20MN is not a new concept. Rather it builds on earlier ideals, with 'Garden Cities',

'Walkable Neighbourhoods', 'Urban Liveability' and the 'Compact Cities' being held up as

forerunners (Rudlin and & Falk, 2010; Calvert, 2021; Monocle, 2020). Internationally, wide

ranging commitments have been made to the concept, perhaps most prominently by Mayor

Ann Hidalgo in Paris in her 2020 campaign where a key pledge was to turn Paris into "ville

du quart d'heure" (*the 15 minute city*) (Willsher, 2020).

The definition of what ingredients make up a 20-minute neighbourhoods/15-minute city is not

consistent between places and, in many instances, lacks sufficient detail for implementation

(Gower and Grodach, 2022). Yet, despite this, such ideas are regarded as having become

"accepted components of planning systems" (ibid.) since 33 cities had adopted the concept

worldwide by the end of 2020. As Gower and Grodach identified, the 20 minute

neighbourhoods concept had been embraced in nine cities pre-pandemic, sparked by

implementation of the Portland Plan in 2012 (20-Minute Neighbourhoods, 2021) and the

Plan Melbourne 2015 (Zierke, Fellows and Creasy, 2020). In these cities, plans and

strategies were premised on the need to redress unfair, unhealthy and inequitable urban

societies (seen as engendered, in part, by urban sprawl) and to minimise car dependence.

Fifteen more cities are conducting further research into the possibility of applying this

concept. In eight of these, the motivation is explicitly stated as Covid-19 and the city's

lockdown recovery strategy. But, according Gower and Grodach, only eight cities (Bendigo,

Brampton, Hamilton, Melbourne, Milan, Moonee Valley, Portland and Ottawa) have provided

detailed information about the eight core themes they identified as important (shopping

centres, employment areas, education, public transport, active transport, greenspace and

sports grounds, health, housing diversity) for delivering the 20MNs. Three further cities

(Shanghai, Singapore and Tempe) have included details for half of these themes. Four cities

(Detroit, Dublin, Kirkland and Paris) have referred to all eight themes but without providing

detail about them. At a national, as opposed to city level, Scotland has boldly and uniquely

embraced the concept nationwide, to be explored across not only its urban areas but in all its

towns, villages, parishes, and rural areas too.

However, there is a danger that the 20MN is becoming a 'fuzzy buzzword' (see Palmer et al, 1997), facing the fate of previous planning catchphrases such 'sustainable neighbourhoods', 'walkable neighbourhoods', 'urban liveability' and 'compact neighbourhoods', which have been widely used but rarely achieved a consensus definition, hampering implementation. This raises a question: why is a new formulation, the '20 minute neighbourhood', needed now? These previous terms all refer to sustainable, connected, walkable places that are intended to be beautiful and safe. Why do planners and urban designs keep shifting their attention from previous 'solutions' to new ones - re-branding what is already know - over and over again? Such rebranding inevitably requires a step back every time before progress can be made. Hence, although the term 20MN may have succeed in sparking a dialogue globally (including among politicians), it risks bringing with it new confusions and misunderstandings which could prevent evolution of a shared agenda. As the RTPI Scotland stressed (2021), there is a real need to 'move the debate forward' and to translate (the many) principles of the concept into practice. The currrent lack of clarity could undermine trust and confidence, leading potentially to opposition to both the process and to its outcomes, especially where retrofitting needs to upset the status quo in existing settlements since the number of studies directly focused on attempting to do so is limited and fragmented.

This paper's overall objective is to separate the ends pursued in 20MNs from means available for achieving them. Four overarching questions are investigated:

1. *What are described as the key outcomes of 20MNs?*

2. *What are the means available for achieving them?*

3. *What are the relationships between ends and means here?*

4. *What is the impact of people's behaviour on the effective implementation and operation*

of 20MNs?

This investigation is timely given the importance that is once again being attached to

neighbourhoods in urban design. Achieving ambitions to see 20MNs implemented across

different types of urban, suburban and rural settlements - as voiced, for instance, by the

Scottish Government - will mean pushing beyond the boundaries of what has been achieved

so far in trials of the concept to date.

RESEARCH DESIGN

To systematise the investigation reported in this paper, a research framework was generated

directly from collating and analysing the key issues raised by academics and practitioners in

publications on 20MNs. A two-step approach was employed here. Both academic and grey

literatures were surveyed and text collated to allow a) a critical review of how the concept is

being framed, and b) construction of an analytic framework for clarifying the boundary and

components of the concept. The content analysis was conducted following guidelines offered

by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

criteria, an established procedure for such investigation. These criteria are *identification* of

relevant publication, *screening* for eligibility and the *inclusion* in the review. A

comprehensive search based on 'title/abstract/keyword' components, was carried out.

Searches were made using the Web of Science, Google Scholar, Science Direct/Scopus,

ProQuest, , ACM digital library. Key identifiers - '20 minute neighbourhood(s)', '15 minute

city(ies)', 'compact neighbourhood(s)', 'sustainable neighbourhood(s')', 'walkable

neighbourhood(s)', 'urban liveability' and 'retrofitting' - were used with these search engines

over the last 20 years. Grey literature was similarly searched to identify resources intended

to support urban planning and design policy and practice. This twin-pronged approach allowed systematic exploration of the existing literature and identification of gaps in what is currently available in the public domain. An ancestry search was used to review the bibliographies in the publications found to expand the sources reviewed further. Sources for inclusion in the study were identified, collated, investigated, and coded.

Detailed analyses were undertaken to discern what the literature takes to be:

 a) the outcomes that 20MNs are expected to deliver, and

b) the means intended to underpin these that makes them deliverable.

Since the literature does not contain empirical evidence about cause-and-effect relationships here, common place interpretations were employed to separate these two components. For instance, density is rarely a desired outcome in and of itself but is pursued because of what it can help deliver – increased population supporting a wider range of services and amenities within a given area. Relevant material from each publication was captured in a spreadsheet, where each column was used to record information about a discrete theme or issue – generated from reviewing the literature, see Figure 1. Efforts were made to identify what were presented as both negative and positive factors affecting the operationalisation and deliverability of 20MNs.

Figure 1.   **Desired outcomes and the means for achieving them in the 20MNs generated from the literature review**

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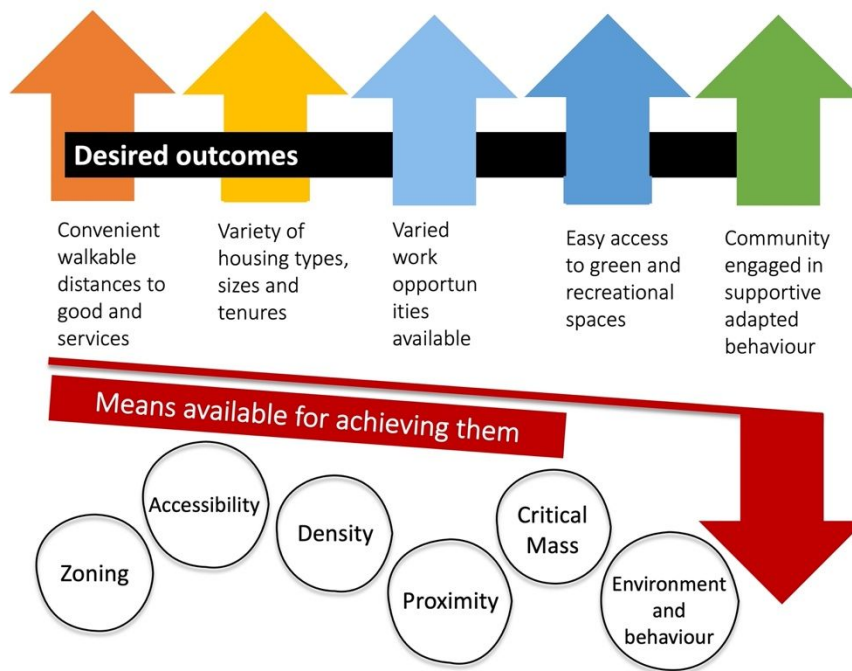
There are limitations to the approach adopted. It was difficult to capture all the issues raised

in discrete categories and within a single, conceptually coherent, framework due to: a) the

high degree of complexity involved in descriptions of 20MNs offered; b) the diversity of

decisions and actions whose pursuit is recommended; and c) the highly variable political,

social and cultural milieux in which this form of planning activity can be undertaken. And

while literature reviews can provide a basis for knowledge development in a field of

academic endeavour, how research is done and how scholarly publishing works mean that

insights gleaned are not necessarily thorough or complete (Snyder, 2019).

A further difficulty is the term 'neighbourhood' itself (AlWaer et al, 2021), see below. This

may refer, but is not limited to, a geographical or administrative location. It may signal a

place identify shared or contested by different stakeholder groups. But it is unlikely to be

describable by a uniform or discrete set of socio-economic, physical, or environmental

variables. What the term means depends on who is using it and for what purpose. As a

result, in this paper, no attempt is made to produce a generic set of neighbourhood

problems/solutions. Each neighbourhood necessarily has its own distinct make-up, its own

mix of what may work well or badly. Even within a particular neighbourhood, those who live

or work there are not homogeneous. Instead, they are individuals and groups with varied

(potentially conflicting) interests in, with differing levels of knowledge about and engagement

with 'their' neighbourhood - as well as having divergent expectations and aspirations about

what it can and should provide.

RESULTS OF THE LITERATURE REVIEW

1. The meaning of 'neighbourhood'

Before plunging into discussion of 20MNs, it is important to consider what is meant by

'neighbourhoods' in general. Definitions of what constitutes a neighbourhood abound in

planning literature. Although no universal definition exists, two main approaches can be

discerned (AlWaer et al, 2021), identifying a neighbourhood either through: 1) administrative

geography or 2) subjective identification. These differences can be traced to the

backgrounds of disciplines that employ them. The social sciences emphasize the human

realm, while physical planning, with its roots in architecture, emphasize perceptions of the

built realm. As a result, as Wargent and Talen (2021) observed, the term neighbourhood is

"at once contested and ambiguous."

As AlWaer et al (2021) identified, a neighbourhood can be treated as either a social or

physical construction, or indeed both simultaneously. As a social construct, the term

conjures (Talen and Koschinsky, 2013) the notion of neighbourliness and impressions of

citizenship. As a physical construct, Barton et al (2021) labelled neighbourhood edges as

being *"fuzzy"*, pointing to difficulties in effectively defining clear boundaries since they are

interwoven and interconnected parts of a whole urban system, often overlapping and blurring

with adjoining areas. Likewise, since neighbourhoods are vastly different in size, form,

density, and character, there is no generally applicable template for them. The existence of

this array of varying descriptions of, and definitions for understanding, what is meant by a

'neighbourhood' heralds significant challenges for uncomplicated delivery of the 20MNs in

practice.

Nor do neighbourhoods exist in isolation. Macro-trends - such as environmental and health

inequalities, demographic, social, economy, political, and technological change - all influence

policy, its implementation, and its operation on the ground (see AlWaer, 2014). For example,

such trends have already been characterised as having detrimental effects on housing - a

core component of neighbourhoods – at least in the UK case. There are also historic macro

concerns at play here, including landownership and market forces (Scottish Land

Commission, 2021; AlWaer, 2014). In the UK, the residential market is dominated by volume

housebuilders, focused on the build-out of high value homes on greenfield sites in growth

areas, located on suburban and rural sites (Scottish Land Commission, 2021). The

inadequacies of such developments were highlighted by the Covid-19 pandemic. This

restricted normal movement of citizens, causing their lived experience of the world to

contract, both physically and socially (Wargent and Talen, 2021). Restrictions imposed

starkly revealed existing structural inequalities (Zierke, Fellows and Creasy, 2020), laying

bare limitations experienced by many communities in terms of digital poverty, poor quality

housing, lack of greenspace, and suburban developments that curtail neighbourliness.

However, the pandemic also offered opportunities for experimentation. Spaces for People (2020) sought to make essential travel and exercise safer during Covid 19 by reclaiming streets, offering some the pleasant discovery of a new way of living, with an improved work-life balance, and working, shopping, and playing locally (Corbett, 2021). The pandemic underscored the importance of 'place' to 'quality of life'. (Allen, n.d.; Zierke, Fellows and Creasy, 2020). The crisis conditions it imposed were identified as a potential catalyst for change, for delivering better quality places with improved outcomes for residents (Carmona et al., 2020; Scottish Government, 2020; Allen, n.d.) - just as previous pandemics had led to innovation in spatial planning (Jolliffe, 2020). In combination, the convergence of these three issues - sampling of new ways of living and working, opportunities for experimentation, and attention to inequalities - provide what has been claimed as an advantageous platform for spreading the 20MN concept (Corbett, 2021; RTPI, 2021).

2. Categorising patterns of development

There is a spatial continuum of forms of settlement from large urban areas like the cities and settlements in 'central belts' (at least in the western countries) to the very remote rural areas (see, for example, Rural and Environment Science and Analytical Services Division, 2018). There are more nuanced variations in development patterns if the construction date/period (of road structure, infrastructures, and buildings) are acknowledged as being significant in addition to 'scale' and 'location'. And types of settlement require an even more nuanced categorisation if 'population' and 'accessibility' are considered, often established by employing the notion of 'drive time'. However, doing this will not adequately reflect the aspirations of the 20MNs, since the categories are based on vehicular mobility. Despite this shortcoming, such categories have been seen as providing a sound basis from which to

develop appropriate recommendations for application of 20MNs in the future (O'Gorman and Dillon-Robinson, 2021).

Categorising settlements needs to encompass a wide range of variability, in terms of size, location, density and intensity of uses, and quality of facilities and amenities. Defining the boundaries of, and the threshold between, neighbourhoods within settlements can be very complex. Coterminous neighbourhoods may bleed into one another, both in terms of location and type. In practice, it may be difficult to distinguish one from another. Rural areas may overlap with outer suburban ones which may also intersect with inner urban ones. Such intersections may bring confusion, hindering stakeholder groups from working together to define a shared agenda for their different but adjacent neighbourhoods. And since each neighbourhood is different, the balance and matrix of services, and resources - green spaces, transport networks, housing, proximity to amenities, along with the configuration of the population and intensity of occupations – all these will require bespoke versions of the 20MN to be developed an applied for each context being retrofitted.

3. Prevailing definitions of the 20MNs

The burgeoning literature provides myriad definitions for the 20MNs. Table 2 compares just five suggested by different types of organisations - two international and three from the UK.

Table 2: Comparison of 20MNs definitions used by government agencies, professional and voluntary organisations

Organisation	Definition
Melbourne City in Australia	*The 20-minute neighbourhood concept is all about 'living locally'—giving people the ability to meet most of their daily needs within a 20-minute return walk from home, with access to safe cycling and local transport*

	options. 20-minute journey represents an 800 metre walk from home to a destination, and back again (10 minutes each way).
Portland City in the USA	A 20-minute neighborhood is a place with convenient, safe, and pedestrian-oriented access to the places people need to go to and the services people use nearly every day: transit, shopping, quality food, school, parks, and social activities, that is near and adjacent to housing.
Scottish Government	Scottish Government draft National Planning Framework 4: A method of achieving connected and often compact neighbourhoods designed in such a way that people can meet the majority of their daily needs within a reasonable walk, wheel or cycle (within approx. 800m) of their home.
Sustrans	"……..ensure that it is easy for people to meet most of their everyday needs by a short, convenient and pleasant 20-minute return walk". 10 minutes there, and 10 minutes back.
Royal Town Planning Institute (RTPI)	'20MN are a concept of urban development that has ascended rapidly in the minds of policymakers, politicians and the general public across the world. The basic premise is a model of urban development that creates neighbourhoods where daily services can be accessed within a 20-minute walk' (2021, pg 3).

The RTPI has pointed to the 20MN's global popularity, hoping that it could be the vehicle for delivering many of the economic, environmental, and social ambitions for the places we live in. In the USA, for Portland City, a 20MN has three basic characteristics: a walkable environment, destinations that support a range of daily needs (i.e., shops, jobs, parks, etc.), and requisite housing density (Emery and Thrift, 2021). The definition used by Sustrans, the UK's walking and cycling charity, stresses people's ability to move through the built environment by walking, wheeling, or cycling to meet their daily needs and perform their daily tasks. The descriptions offered by the Scottish Government suggest that increasing the walkability of a neighbourhood will support and encourage healthier lifestyles and contribute

to Scottish Government's actions and ambitions for net-zero greenhouse gas emissions by 2045 (SNZR, 2020). What each of these definitions share is a concern for easy and safe walking: each stresses the intended primacy of this (as opposed to vehicular access) as a preferred means of movement through space.

4. Travel time and the spatial hierarchy

Not every definition cited in Table 3 above refers to a '20 minute' timeframe. This raises the question: 'Just how important is temporal dimension to this concept?' There are conflicting notions about the time element. For example, is the time element described there and back or only one way? (Town Centre Action Plan Review CPD Series, 2021). The Melbourne Plan 2017-2050 is rooted in research demonstrating that the maximum time people are willing to walk to meet their daily needs locally is 20 minutes (Emery and Thrift, 2021). It has been estimated that an 800-metre walk takes 10 minutes, and a 1,600 metre one takes 20 minutes- or 10 minutes' walk each way (Emery and Thrift, 2021; Christian et al., 2016; Manaugh & El-Geneidy, 2011). Internationally the walkable distance specified ranges from 15 minutes in Paris, 20 minutes in Melbourne and Portland, Oregon, and 30 minutes in Dublin, Ottawa, Sydney and Bogota (Gower and Grodach, 2022). Nearly a quarter of a century ago, the UK's Urban Task Force in 1999 appreciated that some key facilities and services need to be in closer proximity than 800m, (e.g., green space), while others may only be supported at a regional or even national scales – such as acute specialist hospitals or sport arena, symphony orchestra halls, world class universities. There is thus a hierarchy of scales (encompassing time/distance) for providing facilities and services which range through local, neighbourhood, town city centre to the region. Differences in context preclude, Barton argued (2016), a one size fits all solution. Where jobs and services are located can

have direct and indirect effects on how healthy neighbourhoods are, influencing, for

instance, how employees travel between home and work (ibid.).

Where the goal of planning is to mitigate the effects of private car use, Barton recommended

that "facilities serving a city-wide or regional hinterland - including universities, major

hospitals, football stadia and concert halls, as well as major office and retail functions -

should be located where there is excellent access by public transport from the whole city,

and good inter-city rail services, facilitating inter-city business travel as well as longer

distance commuting, shopping and leisure trips". When possible, Parker (1994) proposed,

mixed-use developments should encourage, in a safe manner, jobs and services closer to

people and their place of employment and services to reduce need for travel by vehicles.

This would also, he suggested, mitigate the negative effects of sedentary lifestyles by

encouraging walking and cycling. Porterfield et al. (2002) found a relationship between

mixed use and decreasing trip generation, vehicle kilometers travelled and increase in

pedestrian travelling.

Data provided by Paths for All (2020) indicated that people's perceptions of walking

distances are nuanced. They are prepared to walk further for some activities than others. On

average, current walking journey time to access a local service is longer than people

suggest they willing to walk for (ibid). And, while a service may be near in terms of distance,

it may not be accessible on foot because of the nature or quality of the journey required to

access it (O'Gorman and Dillon-Robinson, 2021). In addition, people have differing abilities

and walk and cycle at different speeds (Douglas and Beautyman, 2020; Zierke, Fellows and

Creasy, 2020). This suggests that planning to make places accessible must (Planning for

Place Programme, n.d.) focus on integrating and retrofitting the key features required to

allow people to live locally rather than becoming fixated on a 20 minute duration for active

travel (Kirby, 2021; Emery and Thrift, 2021, p10).
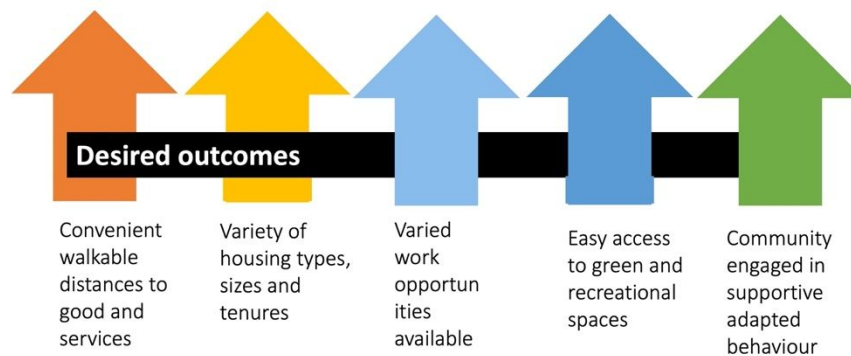
THE DESIRED OUTCOMES OF 20MNS

Figure 2. Desired outcomes distilled from the literature review.

There is no unanimity in the literature on the key outcomes necessary to constitute a 20MN,

nor how many of them must be present for this label to be used appropriately. According to

C40 (2021), 20MNs and 15-minute cities are places that share five critical characteristics:

1. goods and services, especially fresh food, groceries, and healthcare facilities

   convenient and accessible to everyone

2. variety of housing types, sizes and tenures available to accommodate the variety of

   people and their household needs

3. a breadth of working options available to provide for the variety of working behaviours

   and situations, including co-working spaces, and retail and hospitality facilities, and

4. good quality and frequent opportunities to encounter natural elements through green

   and recreation spaces.

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O'Gorman and Dillon-Robinson (2021) offered a smaller set containing just three key

characteristics for a place to be able perform as a 20MN;

1. *features and infrastructure*: these are essential services and include shops,

   amenities, healthcare facilities, active travel infrastructure and green space

2. *quality of Services and experience*: a certain '*level of quality and experience*' of these

   services and this infrastructure needs to be delivered, and

3. *engagement and behaviour change*: an '*engaged community prepared to adapt or*

   change their behaviours' is essential to make sure places perform as 20MNs on the

   ground, requiring bespoke measures designed in response to community needs.

Talen and Koschinsky (2013) depicted the 20MN as a 'wicked problem' composed of the

intersection between four key characteristics: *"environmental, health, economic, and*

communitarian goals".

The complexities revealed above - even at the level of how many desired outcomes are

involved - suggest that: a) the 20MN defies simple definition; b)has overlapping and

countervailing elements; c) is concerned with a multiplicity of stakeholder views; and, as a

result, d) addresses problems that will prove difficult to resolve; e) especially given the lack

of an easily tackled system boundary. These difficulties are compounded by deeper

systemic socio-economic problems, such as structural poverty and inequality (Andersson

and Musterd, 2005) that may afflict neighbourhoods. And, even if such conditions can be

improved locally within specific neighbourhoods, targeting them for intervention can, for

example, "hold an ever-present risk of the pathologization of the poverty problem" (Van

Gent, et al., 2009).

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As these extracts from literature make apparent, the 20MN concept cannot be held up as a simple panacea (O'Gorman and Dillon-Robinson, 2021) for addressing all the social, environmental and economic challenges that confront neighbourhoods. Nor can the 20MN be presented as a one size fit all approach since each neighbourhood has its own strengths and weaknesses. Instead, flexible handling of what is meant by 20MNs will be essential and is likely to prove an important part of the concept's deliverability, given the varying contexts within which it will have to be applied. Criticism exists (Stafford and Baldwin 2018; Weng., et al. 2019; Gower and Grodach, 2022) that the 20 minute neighbourhood concept currently floats free because it does not analytically or concretely address structural features in society – such as political economy, class structure, existing patterns of health, well-being and disability, or race - which may drive the inequality that the concept is being evoke to tackle.

THE MEANS AVAILABLE FOR UNDERPINNING DELIVERY OF 20MNS?

All the desired outcomes listed above are normative. They represent features which authors believe should be displayed by neighbourhoods if they are to be worthy of the label '20MN'. But such wish lists do not explain how such outcomes can be achieved. There is an alternative way of conceptualising of what is being sought here. This is to consider the means available – the mechanisms, levers, triggers, (on occasion, the causal factors) - that have to be in place and aligned to be mutually supportive for a 20MN to operate effectively. Figure 3 lists means for achieving 20MNs, drawn from the literature reviewed and framed in terms of a relationship diagram.

Figure 3 The means whose alignment is needed for effective delivery of 20MNs.
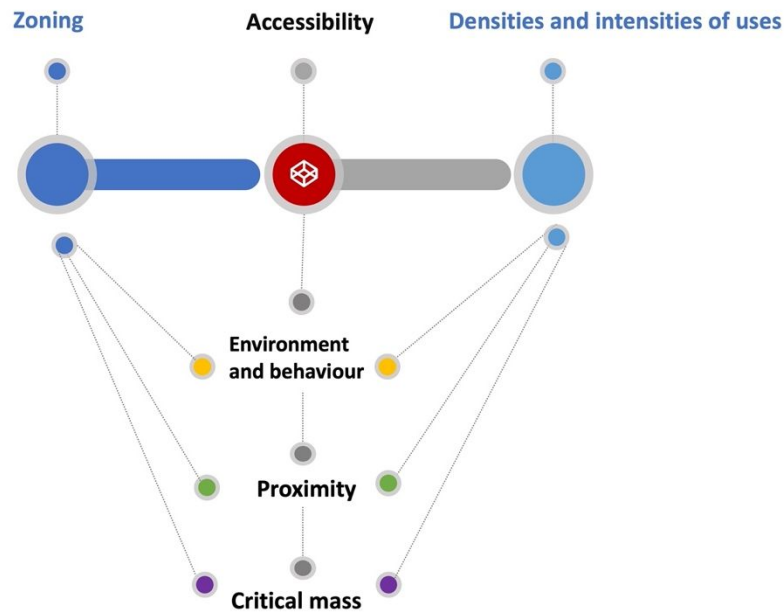
Each of these means appears to be interlinked. Does this imply that each of them needs to be in place and manipulated effectively to achieve 20MNs? These means are explored below to structure examination of what authors of the academic and grey literature reviewed believe about how 20MNs can be achieved.

A. Zoning patterns

Current planning and development practices have features seen as inimical to the 20MN. Physical master plans with rigid zoning by function result, Adams and Tiesdell (2012) noted, in mono-functional housing sub-divisions, containing populations isolated from services, with segregated uses often heavily dependent on car travel. Prevailing urban planning practices divide uses into separate zones to enhance amenity, efficiency and safety, resulting, Newman (1997) commented, in 'homogeneity' in land use that encourages vehicular traffic and eliminates social interaction in those areas. Homogeneity in land use is seen (Breheny, 1992) as contributing to gentrification, segregation, imbalances in job – with house distribution leading to more commuting by cars which results in air pollution and congestion.

Such real estate development practices make development easier, from a developer's

perspective, since single-use developments are generally less complicated to create, simpler

to manage, and more readily understood by potential investors. As a result, such

'development' is, according to Carmona et al. (2020), Adams and Tiesdell (2013) and

Gulliver and Tolson (2013), 'placeless', resulting in single-use housing schemes

characterised by poor estate layout, over-engineered roads, dominant parking, poor amenity

space, lacking connectivity and bereft of planting and local facilities. A focus on the 'end

product' has, according to AlWaer and Illsley (2017) and Tarbatt (2012), led to the

standardisation of places and a reduction of 'place quality', see Figure 4.

Figure 4: Comparison of rigid zoning by function with integrated uses.

Frustration has been expressed at how such developments are delivered. Clients and

housebuilder developers are focussed primarily on the 'delivery' of houses and do not retain

a long-term investment/involvement in the performance of wider neighbourhoods. Such

developments have been described, by AlWaer and Illsley (2017), as 'single physical

projects'which involve procurement of a collection of housing units, ignore potential for

diversity, and are often characterised by undefined/poorly connected public realms. This the

authors compared unfavourably to the mixing and variety that occurs over time in places that

have grown and changed incrementally. As Gibb and James (2021) noted, this may be

accompanied by a lack of coordinated thinking around public transport and other sustainable

transport infrastructure. They argued that such poor quality of development is exacerbated

not just by the limited power of competition to 'incentivise' and drive-up quality but its failure

to bring about a greater diversity and choice for consumers. As Barnes (in Campbell, 2018)

stated, 'Housebuilders are market takers not market makers'. Campbell (2018) argued that

development's established models of risk and reward are so buried in the banking, public

sector procurement and construction industries that, in the absence of demonstrated viable

alternatives, "they will plough on until they fail". The consequence, Gulliver and Tolson

(2013) contended, is that too many urban environments (at least in the UK) are of poor

quality and needs to be "radically upgraded". The scale of such upgrading represents a

significant challenge for those seeking to deliver 20MNs. It involves (Leinberger, 2009)

challenging the combined resistance of current planning and real estate development

practices to mixed use. Doing so, English Partnerships (2007a) suggested, requires careful

consideration of the precise mix of uses proposed in any development to 'maximise synergy

and minimise conflict'. The prevailing terms and conditions underpinning developments may

prove hard to change, embedded as they are in the mindsets of both institutional investors

and major developers who are concentrated on producing single-use developments.

Gulliver and Tolson (2013: p. 20) claimed that there is now a widespread sense that markets

have become detached from what people fundamentally value about places, "[so] that we

need to reconnect markets and place values". This requires rethinking the role of markets in

achieving 20MNs, with new ways of aligning investments with the lives that people want to

live. They argued (ibid) that "if we want to take 20MNs seriously, we need to consider how

we might establish 'Place Investment Value' (collective value) in addition to individual assets

that form part of that place". From this perspective, 20MNs need to successfully attract,

2

prime and invite investment, i.e., be underpinned by a collective business plan for place,

setting out the basic principles required and shaped by processes that engage, guide and

direct the implementation of these. And, crucially, these processes need to demonstrate that

investments in 20MNs will result in secure returns.

B. Accessibility patterns

Current patterns of accessibility, and the technologies these depend on, are also seen as

inimical to the 20MNs. Transportation technologies have played a pivotal role not only in the

form and shape of built environments but in the connections and interdependencies between

them. Carmona, (2021) and Carmona *et al.* (2020) argued that the introduction of mass

transport systems and technologies brought about a fragmentation of previously close

spatial relationships between residences, workplaces and services. Gehl (2011) suggested

that consequent growth of urban environments intensified dependency on private cars for

moving in and through increasingly dispersed places in order to meet the needs of, and to

perform the tasks necessary for, everyday life. New trends in living and working patterns

were noted by Adam Urbanism and Grainger plc (2014), such as the increasingly blurred

distinction between living and working environments, which need to be accommodated.

Such changes can reach a 'tipping point', according to Ravetz (2008), where radical building

forms or adaptations start to be realised in neighbourhood and city design solutions. As

Harvey (2008), cited by Bernheimer Adam Architecture (2014, p. 9), pointed out "our relation

to the places we live in cannot be separated from our lifestyles, social interactions,

technologies and connections to nature". Current technology/lifestyles patterns are regarded

(Tigran, et al., 2020, p.325) as unsustainable because of the destructive burden they place

on the environment. In 2018 in Great Britain, for example, 68% of workers typically travelled

to work by car, though this varied by region with London having a substantially lower

proportion of people commuting by car (27%) because of its integrated public transport

system. The average time taken to travel to work was 29 minutes (Kronberg, et al., 2019),

ranging from an average of 15 minutes for walking to 59 minutes for travelling by rail.

Significantly 20% of journeys in Britain (The Cycling Embassy of Great Britain) are under 1

mile - a distance easily cycled in around 5 minutes; 38% are under 2 miles - easily cycled in

around 10 minutes; and 66% are under 5 miles - cyclable in around 25 minutes. Prevailing

patterns of travel come at environmental costs (congestion, pollution, carbon emissions) as

well as long term health risks arising from lack of active travel and social isolation.

Gibb and James (2021) suggested that a critical disconnect currently exists between the

expressed hopes of governments and what is being delivered. Homes for Scotland (2018),

for example, argued this disconnect is a key factor exacerbating the pressure for more

housing which, in turn, leads to local authorities incentivising large-scale suburban housing

developments primarily on greenfield sites in order to meet national, regional and local level

housing targets. Such developments have attractions in terms of privacy, safety, off-street

parking, and large gardens. But their hierarchical road systems reduce them, Adams and

Tiesdell (2013, p. 18) contended, to a collection of specialised 'pods' with each use –

shopping centre, school, business park, housing estate – conceived as a separate

component with its own parking provision and usually enjoying its own individual, exclusive

access to a collector or main distributor road. Such roads are inimical to sustainable

movement and travel. For example, if housing estates or local centres have been insulated

against sustainable, direct, 'people powered' movement, with cul-de-sacs development or

'pods' patterns, then Bottrill (2021) observed, stakeholders may struggle to engage in active

travel. Cul-de-sacs (dead ends) are, by definition, Tarbatt and Street Tarbatt (2020, p. 74) noted, *impermeable* forms of development, compared to layouts with compact structure that are interconnected by streets or other kinds of routes. And, once a place has these fixed patterns of developments - described by Campbell (2018) as closed and nonadaptive, it can be hard to reverse or open it up later to be a more connected system. Instead, traffic planning techniques are required (ibid) for achieving road networks that exclude through-traffic from developed areas. Retroactively, this might be not feasible. It may require, as Bottrill (2021) acknowledged, interventions or set of measures involving compulsory purchasing of private land, at an astronomical cost, or other mechanisms likely to be so politically unpopular as to be prohibitive.

C. Densities and intensities of uses

Appropriate density and intensity are seen as prerequisites for achieving 20MNs. However, the literature reviewed suggests that are no hard and fast rules on how to deal with density at neighbourhood levels. Density is used to describe, predict and control the use of land (Cooper and Boyko, 2012; Berghauser Pont & Haupt, 2007; DETR, 1998). From a spatial perspective, it may be defined as the number of units in a given area. Density in whatever form (high, medium and low) shapes how neighbourhoods look and feel, and how they are perceived and experienced by those who use them, in both obvious and subtle ways. The availability of services, which is affected by density (Bonaiuto, et al., 2003; Hur, et al., 2010), affects how satisfied people are with their neighbourhood. Newman (1997) identified an inverse relationship between density and automobile ownership, auto travel, per capita fuel consumption and per capita kilometre travelled. As density increases, the other variables decrease. The density of a place influences commuter mode choices. Lower densities are

insufficient, Newman and Kenworthy (1987) explained, to support public transport system and so promote private car use. Low densities impose, Calthorpe (1993) identified, difficulties in the provision of basic services and facilities affordably. Density was reported by Frank, et al. (2004) to have significant impacts people's quality of life, their sense of safety, and on their mental and physical health and wellbeing. And Thwaites et al. (2013) suggested that density affects people's perception of crime, their attitudes to walking, and their ability to upkeep and maintain participation in communal activities. Density also triggers, according to Romice et al. (2020), complex psychological reactions: whilst we crave interaction, we enjoy it only if we can retreat from it. The scale of buildings and the diversity and transparency of façades are also held by Porta and Renne (2005) to have beneficial effects on people's sense of security, territoriality, personalisation as well as their feelings about how social sustainable where they live is. This list of factors suggests that people's personal perceptions of density are strongly qualitative but are influenced by underlying physical characteristics.

Once a significant proportion of a population has access to and begins to use cars, Hart observed (2015), they can deploy their car ownership when they choose where they go to buy their daily/weekly groceries or to access different facilities and services or places of employment. They no longer need to consider 'destination proximity' or the public or private services or facilities that are geographically closest to their homes. This choice induces travel patterns that allow greater distances between residential locations, commercial facilities and services. Homes no longer need to be located within a short walking distance of shops or facilities; shops and facilities no longer need to cluster in a location that is most accessible by foot or by accessible public transport from a catchment area containing a

critical mass of housing. When density is allowed to begin to fall below a certain threshold

(see 'critical mass' below), Hart suggested, disconnections in the relationships between land

uses emerge. There is no longer any need for geographical cooperation between land uses

because everywhere is intrinsically in competition with everywhere else since everywhere is

accessible by motorised transport. Hart suggested that, where there is a low mass of

housing densities, then there is no 'pattern' to the urban grain, and the consequence is

urban sprawl. Newman and Kenworthy (2000:113) contended that 'achieving a more

sustainable urban form inevitable involves the development of density that can enable public

transport, walking and cycling to be viable options. Diversity of urban form was seen, by

Rode, et al. (2009), as having a role to play in improving social equity in urban areas. For

example, it could help, Greed (1999) suggested, widen choices of jobs, housing types,

recreational facilities and between mode of transports.

D. Proximity

Proximity is seen as being at the heart of what 20MNs can achieve. It is also portrayed as a

key mechanism for achieving it. If so, what are the obstacles to denser, more diverse urban

neighbourhoods? More particularly, how can existing settlements be retrofitted to

accommodate for density and diversity? Sim (2019) explored the relationship between

density and diversity as a means of producing proximity. Proximity is understood here to be

the closeness of people, goods, resources, facilities, services, and places. Sim suggested

that proximity leads to improved accessibility and increased mobility around the built

environment. People's feeling of comfortableness in moving around and fulfilling the daily

tasks of their lives is increased. Dense and diverse place encourage people to walk and

close-grained diversity in areas encourage walking that is impractical in suburban and

declining areas (Gehl, 2011; Jacobs, 1961). Sim also noted (op. cit.) that increases in

cultural and commercial activities are experienced in dense and diverse urban environments.

Diversity was also held by Breheny (1992) to create heterogenous landscapes that are

attractive and sustainable. So, to achieve sustainability, homogenous land use must be

discouraged and heterogenous land use must be promoted. This prescription resonates with

the ambitions of the 20MNs to increase the accessibility to services, places and amenities,

as well as increasing the quality and vibrancy of public life. Sim (op. cit.) offered a simple

equation of 'density x diversity = proximity'. But it is necessary here to guard against the

'fallacy of proximity'. Simply because people live near a facility – for example, a shop,

school, sports facility or employer – it doesn't follow that they will necessarily choose to use

it. There are many other intervening background variables – not least class, education and

income along with the preferences and prejudices that these give rise to – which may lead

people to patronise other, more distant, facilities even though they are further away and so

more difficult to access.

Few contributors to the literature on 20MNs directly confront the issues of causality that

underpin the concept. Campbell (2018) did, contending that density is an "outcome, not a

determinate'. He argued that it should evolve as a consequence of correlating intensity of

occupations and uses, with accessibility and proximity to facilities and services. He

suggested that it is the level of intensity of use, combined with sensitivity to specific needs,

that should ideally determine appropriate densities. Barton et al. (2021) agreed, advising that

intensity of uses is related to people's activities rather than to buildings. It has been

measured in terms of resident population per hectare, workers per hectare, or

visitor/shoppers per hectare. It can also be measured, they suggested (p.287) in terms of

flows of pedestrians or vehicular traffic. They further stated that, if high density blocks of flats

are located in areas lacking good transport links or hubs, and without proximity to local

facilities and amenities, then this is a recipe for car reliance, with concomitant effects on

household expenditure and levels of congestion, pollution, road traffic casualties and carbon

dioxide. In short, the 20MN is seen as requiring sufficient intensity of residential, commercial

and institutional developments to support highly accessible local facilities and services within

walking distance with strengthened viability of public transport. But none of this guarantees

that people will use active travel unless it is attractive to do so.

F. Critical Mass

Because of concerns about proximity, density and use intensity, the viability of 20MNs is

seen as dependent on a 'critical mass' of people within a given area. Transforming 'vehicle

venerating environments' into places more akin to the pre-mechanised urban environments

will, Moreno *et al.* (2021) suggested, require re-fostering densities that deliver diversity and

proximity. Density is seen as a critical factor here which can generate life and diverse

activities in urban environments. A 'critical mass' of people is needed to support the required

range of services and functions that enable people to meet their daily needs "with delight

and comfort: in their local areas". A recent study (Insight focus (2022) indicated that shops

need a certain level of custom to be viable, bus routes need a certain level of patronage,

doctors need a certain level of patient numbers and schools need pupils. Barton et al, (2021)

suggested that a 20-minute neighbourhood, able to support all of the facilities listed in Table

4, would need a population of at least 10,000 people at a density of 50-90/hectare,

depending on how direct the walking routes were. The number of households required,

Thomas (2003) stated, to support the vitality of a corner shop is considered to range

between 2,000 and 5,000. Hart (2015) and Thomas (2003) both recommended that at least

2,000 people should be located within 150-250m of each corner shop and ideally within a

walkable distance. Barton et al. (2021) indicated that 3,200 dwellings result in a population of

about 7,360 people. If everyone is approximately within 400m of shops, then this population

density can, they argued, also support a school, shops and other community uses. Insight

focus (2022) reported that, to make bus travel a real choice over the private car, bus stops

ideally should be no more than 5 minutes from home. The study suggested that a density of

100 persons/hectare is required to support a good bus service.

Table 4. Facilities required to support 20 Minute Neighbourhoods, Source: Shaping Neighbourhoods,
Barton et al (2021).

Local Facility	Illustrative Catchment Populations
Local shop	1,500
Nursery/first school	2,000
Primary/middle school	4,000
Community centre	4,000
Post office	4,000
Local centre	6,000
Primary/ middle school	4,000
Small secondary school	8,000
Health centre (4 GPs)	10,000

According to Adams and Tiesdell (2013), it is activity that draws people to places. The more

diverse or complex the activities on offer, the more people are likely to be attracted to a

place. Places are likely to appeal more widely if endowed, for example, with shops of varied

size, type and cost, matched by theatres, restaurants and bars of different qualities and

prices and placed within a setting that allows people to stop, chat and relax (ibid). Crucially,

how such activities engage with the street matters as much as their variety. The mix of uses

(whether within a building, a street or an area) can help, the DETR and (2000) reported, to

determine how well-used a place is, and what economic and social activities it will support.

This is because, as Jacobs (1961) argued, overlapping and interweaving of activities

crucially impacts on the vitality of urban neighbourhoods, creating more active street life.

Socially, mixed use development is often thought by policy makers to provide greater

opportunities for social interaction and help to create socially divers communities (see, for

example, Bridge et al., 2011 and Cheshire, 2007). However, beyond this discussion of

proximity and accessibility, 'design quality' is also seen as being crucial – of both the journey

and the destination (physical space and quality of facility and service provision). As Ross

(2022) argued, "There is no point living next to a 'green park' if it is unsafe, dirty and has

anti-social behaviour. There is also no point living next a health centre if you cannot get a

GP appointment. There is no point living next to a bus stop if services stop at 6pm in the

evening."

G. Environment and behaviour

Even if the means outlined above can be aligned correctly, they will not - of themselves -

deliver 20MNs since people's behaviour is likely to be an intervening variable. Gehl noted

(2010) that great effort has been expended on researching the connection between physical

(spatial) form and human behaviour and the influence this has how cities, towns and

neighbourhoods operate and function. Places, Tigran et al. (2020) maintained, always affect

human activities by providing resources and setting limits, and by engendering psychological

impacts that provoke relevant feelings and furnish a base for cognitive elaboration. This

relationship between physical form and human behaviour is, according to Tarbatt and Street

Tarbatt, 2020, p. xxx), intertwined – as well as being shaped by a complex web of other

economic, political, cultural, ethnic and other factors. Creating an environment where desired

forms of behaviour flourish – a rich social life, with high levels of interaction and sense of

community, underpinned by active travel – depends, they contended, on social situations.

Yet much of the planning and design advice on 20MNs gives primacy to the physical,

assuming that desired social behaviours will simply arise from correct spatial layouts and

configurations.

For instance, Porta (2001) pointed to physical components of the built environment – on the

need for many medium or small size buildings, public spaces, other 'anchor objects', the

integration, rather than separation, of different uses and users within the same places, along

with objects to sit on – as all being important to the creation of the social dimensions

necessary for 'urban life'. The ability of the built environment to provide 'third places' (Tigran,

2008; Tigran, et al., 2020;) - contrasted with the home as first and workplaces as second -

depends on the provision of sidewalk cafes, pubs, bookstores, post offices, restaurants and

corner stores to create physical settings for informal socio-cultural transaction. Oldenburg

(1999; 2002) described such third places as social condensers, arguing that a well-

functioning public realm with a richness of third places can build social capital by re-

enforcing and melding social relations. According to Tigran et al. (2020), this provides the

gathering places which are of great importance for nourishing sociability and the vibrancy of

a neighbourhood. Both Oldenburg (1999) and Tigran et al. (2020) have described

'successful communities' as requiring such gathering places, seen as essential to build

social capital through informal contacts, provide respite from home and work, and nurture

social interactions. Oldenburg (1999) particularly stressed walkable streets as the physical

basis for 'community'.

Gehl (2010) argued that, for the past half century, neither planners nor traffic engineers have

put the relationship between physical form and public life high on their agendas. Instead,

there has been a lack of acknowledgement of how physical structures influence human

behaviour. But, Tarbatt and Tarbatt (2020) and Rómice et al, (2020) contended, it is the

super-imposition of structures operating at different scales that are necessary to produce

coherent urban forms. It is the configuration of an urban structure that determines how

(dis)connected or (im)permeable it is, affecting people's patterns of movement within an area

and through it. Gehl (2010) argued that, if an urban structure is shaped around car

movement and parking spaces, then this operates as a direct invitation to inhabitants and

other users to buy and drive more cars. People quickly adapt their travel behaviour to suit

the context of the street layouts and infrastructure that they encounter. Extreme versions of

this position have been stated by Alexander (1987;2002) and by Tigran et al. (2020) who

contended that, if urban or physical form does indeed influence or change social behaviour,

then if a particular form does not afford a desirable behaviour, then that behaviour cannot

take place.

Such beliefs in causal relationships between built form and behaviour are widespread. For

instance, the UKGBC (2016) reported that the location of housing can contribute to

mitigating poor physical and mental health through affecting the frequency of physical

activity. Occupants of houses that have direct connections with a diverse range of

destinations were more likely to engage in 30 or more minutes of physical activity per day.

Additionally, the number of people who exercise for at least three days a week increases by

25 percent in neighbourhoods that have trails, playgrounds, and parks (ibid.). The UKGB

advised that living in a well-planned neighbourhood with an active transportation network

can encourage walking and cycling, enabling up to 59% of the 150 min of physical activity

recommended for adults by the UK's National Health Service (2020). Similarly, Sim (2019)

explained that encouraging public transport and active transportation options can mitigate

social isolation through enhanced social interactions via "small movements around the

neighbourhood, for crossing the street, getting our bike onto the bike lane, and waiting for

the bus. All these small movements, using different forms of mobility, are seen as

opportunities for sociability -as invitations for people to connect with other people".

Gehl (1987) highlighted what he called the importance of the 'life between the buildings",

arguing that increased spatial distance increases social distance result in less social

interaction and social cohesion. Lewicka (2011) echoed this, arguing that spreading

dwellings out, (as in the case in suburban housing) in pursuit of increased light and

ventilation, has resulted in a spatial configuration that also thinned out people and events as

well. Tigran et al. (2020) suggested that for such places to be re-workable (operate) as a

20min neighbourhood, they will have to be reconfigured from segregated, mono-cultural

realms to enable a culture of social inclusion, diversity and a balance social mix. The role

envisaged for the built environment here, they argued, is as an enabler, not determinant.

They contended that, while social interaction cannot be enforced by urban form and physical

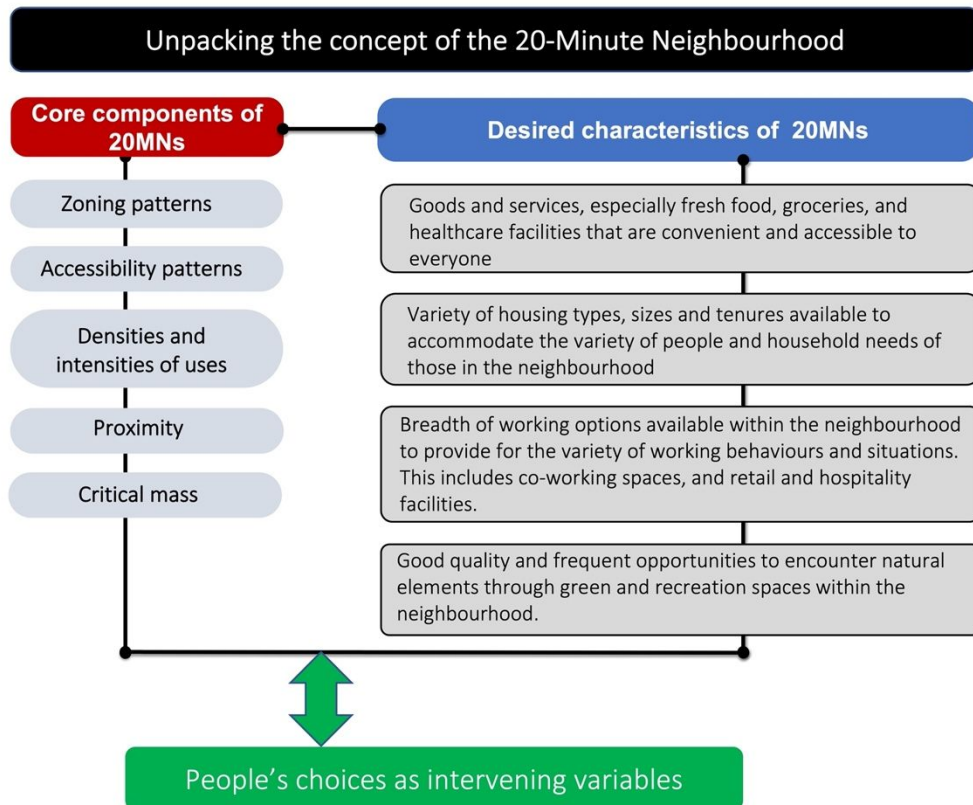design, it can be encouraged (or discouraged) by it. When shaping urban spaces, planners

and urban designers are inevitably dealing with their social contents and processes (which

involve human behaviour). And they argued, invoking Lefebvre (1996), that while there is no

perfect physical form to be reached, there are many different networks and patterns which

are "capable of producing wonderful places and being friendly for pedestrians as long as

their fabric allows frequent and comprehensive linkages and scales that work". Despite the

qualification offered Tigran et. al. (2020), compact urban forms and walkable urban

streetscapes have become go-to tenets in planning and urban design guidance, viewed as

crucial ingredients for an inclusive, liveable and sustainable neighbourhood.

DISCUSSION AND CONCLUSIONS

There is a groundswell of opinion in the planning and urban design literature reviewed above

that car ownership has led to spread of low-density suburbs, where public transport is not

cost effective, and there are fewer people to sustain local businesses since cars are needed

to access dispersed services, jobs, schools and shops. As result, a new planning framework,

based on sustainable principles, is being called for. Promotion of 20MNs (or their correlate

15-minute cities) is the current response to this problem definition. However, there are four

necessary links missing in the chain of evidence needed to deliver them effectively. First,

there is no generally agreed definition of the term. Second there is a lack of distinction in the

promotional literature between the normative bases of what is being promoted – the desired

outcomes to be achieved by 20MNs - and the means necessary for their delivery. Third,

there is a lack of serious consideration, beyond naïve environmental determinism, of the

two-way relationship between the built environment and people's behaviour. And so, fourth,

the impact of people's choices on the viability and deliverability of the 20MNs is not being

confronted and factored into how to bring about the changes required.

The shift toward the 20MNs depicted above is part of an increasing focus on place-based

approaches in the wider planning policy landscape. The climate emergency is compelling

serious reconsideration of how places work, connect and function. The COVID pandemic put

into sharp focus how decisions in the past have resulted in and maintain widespread

inequalities. One attraction of the 20MN is that it cuts across agendas, policies,

organisations, and silos to offer a holistic place-based approach (Rómice, et al, 2022). It also

benefits from (appearing to be) easy to understand, relatable to where we each live, work,

and play and try to thrive. But, as this paper has demonstrated, this appearance is

deceptive. However, there is a growing need for more clarity about what 20mintue

neighbourhoods entails in terms of planning and contemporary place development - to meet

changing needs and expectations, including building *trust* in wider public/private discourse

and governance. The concept also needs to be translated into real and tangible design

solutions if the places where it is applied are to avoid serious problems and costs in the

future, see Trained (2011). This will require moving debate away from 'best practice' towards

'next practice'(ibid, p. 4). Far from being easy, the 20MN is revealed a highly intricate

phenomenon, composed of a large number of constituent parts, with complicated

relationships, see Figure 5.

Figure 5. Untangling desired outcomes from the means for achieving them in the 20MNs.

Unpacking the concept of the 20-Minute Neighbourhood

Core components of 20MNs

- Zoning patterns
- Accessibility patterns
- Densities and intensities of uses
- Proximity
- Critical mass

Desired characteristics of 20MNs

Goods and services, especially fresh food, groceries, and healthcare facilities that are convenient and accessible to everyone

Variety of housing types, sizes and tenures available to accommodate the variety of people and household needs of those in the neighbourhood

Breadth of working options available within the neighbourhood to provide for the variety of working behaviours and situations. This includes co-working spaces, and retail and hospitality facilities.

Good quality and frequent opportunities to encounter natural elements through green and recreation spaces within the neighbourhood.

People's choices as intervening variables

Like other aspects of contemporary planning and urban design (Cooper and AlWaer, 2017), producing 20 MNs requires rethinking professional roles. A 'new professionalism' is seen as necessary for unlocking interdisciplinary knowledge capable of delivering synergistic urban design. Here, Ravetz (2017, p. 42) suggested, that the goal should not be "to create a perfect urban design template, but to look for ways in which different things might fit together".

If the 20MN is to provide an overarching framework for aligning the urban design and planning policy landscapes, significant changes in service delivery, placemaking, and investment will be required. And the intricacy and complexity of these changes will have to be both recognised and acted upon rigorously. Achieving this will require, Sandel (2009: p. 4) suggested, rethinking the role of markets in delivering fundamental public values (public

good). In turn, this would involve, Hill et al. argued (2013: p. 11), realigning market forces

with wider public interest - which could benefit markets by reducing their worst excesses.

The complexity of the relationships between the constituent parts of the 20MNs is a fit

subject for empirical investigation. Sadly, the literature reviewed above is almost completely

silent on this issue. This paper has sought to surface these relationships by trying to

discriminate between ends and means – between desired outcomes and the means

available for achieving them. The significance of the paper lies here in this attempt to initiate

a discussion about possible causal relationships between what is wanted and what would

need to be done to achieve it. From an urban design perspective, one priority is what

designers can and should do in the face of the missing links listed above. Here, the paper

signals a need for humility and caution to avoid over-claiming what urban designers,

operating alone, can deliver. Instead, successfully implementing 20NMs presents an

enormous challenge, not just to individuals as practitioners, but to their professional bodies

as well. Given the political attractiveness of 20MNs initiatives globally, just how much can

urban designers and planners do to aid delivery of 20MNs place-based outcomes? Indeed,

why haven' t professionals been trained to understand and confidently apply the 'good

principles' the concept of the 20MN borrows from previous 'solutions', as identified above.

Given its multiple scales of application, as described in this paper, the practice of 20MNs

interfaces with diverse aspects of contemporary public policy – from promotion of health and

well-being, social enterprises, local economy, and community development to reduction of

carbon emissions and protection of natural environments (after Banerjee and Loukaitou-

Sideris, 2011). There is also a growing recognition that the professions need to do different

things, as well as doing existing things differently (Sailer et al., 2007; Hill et al., 2013).

Bordass and Leaman (2013: p. 1) pointed out that, typically, built environment professionals

are trained to undertake their work – whether masterplanning, building or construction - and

then hand over the keys, not looking into, or out for, what happens afterwards. This

orientation means that they are interested in compliance with planning regulations and

legislation but not necessarily in what happens or may happen in a completed place or built

project. This mindset is compounded by the time it takes to implement and realise

masterplans. What happens afterwards they, and their clients, see as a matter for

communities, users and possibly local authorities (Hill et al., 2013: p. 18). Significantly, one

of the criticisms levelled at the practice of 20MNs is that it may give the misleading

impression of a place as an 'end product' rather than something that is created and changed

by continuing interactions between many complex processes and agents (Tarbatt, 2012).

Achieving the desired outcomes that the 20MNs represents will require co-ordinated

contributions from beyond teams traditionally assembled for urban design and planning, to

include a more inclusive network of shapers and framers, including those holding sufficient

power to bring about the changes required and those stakeholders who will be affected by

changes being sought. Urban designers and planners will have to recognise the structural

constraints on their individual and collective degrees of freedom of action when making

locally apposite decisions (Rómice, et al, 2022). As they do so, they will also need to strive

to prevent the term 20MN becoming yet another planning nostrum (Paskaleva and Cooper,

2022) - a mask or distraction used by decision-makers unwilling to talk more directly about

the impoverished nature of the lives of those occupying localities in which they are expected

to deploy their expertise and experience. Without a strong political mandate, and the

3

resources required to implement this, urban designers and planners are likely to find that

they have limited direct ability to improve the lives of those in localities that they identify as

suitable candidates for the 20MN treatment.

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Reviewers' comments	Authors' response
Editor's comments	
The topic of the manuscript is timely, important and relevant to OHI. The reviewers have provided valid and constructive feedback. Please address all comments	Thank you for this commendation. This is highly appreciated
In addition, the abstract should be shorten down and rewritten as per the Author Guideline -i.e. Structured Abstract- including the methodology.	The abstract has been rewritten as per the Author Guideline
Also, please explain the method of the LR used in the main body of the manuscript.	An extended description has been added of the data collection and analysis methods employed, see text shown in red on pages 2-5.
Reviewer: 1	
Recommendation: Minor Revision	
Comments:	
This article presents a topic related to the concept 20-minute neighbourhood. The main focus here is to revisit this concept. This research is similar to a review article. I have some minor comments that can help provide a better version of this study.	We agree that this paper is a review article. Thank you for the pointers below as to how the paper can be improved.
1- The title should be revisited to reflect the research method or the outcomes. Here, the subtitle is very generic and does not provide an in-depth overview of the entire content of the paper.	We have altered the subtitle to make clear that the paper is a literature review that seeks to disentangle desired outcomes from the means available for achieving them.

Additionally, there is no clear distinction between 'ends' and 'means' in the 20-minute neighbourhood. What do the 'ends' mean?	New text has been added at the bottom of page 4 to explain the common place interpretation employed to distinguish between ends and means – in the absence of empirical evidence in the literature dealing with the cause-and-effect relationships between the components under scrutiny. In line with dictionary definitions, 'common place' is taken here to mean 'ordinary' to the extent of often being taken for granted. Our purpose is to make the tacit assumptions used open to critical investigation.
2. The abstract needs to be rewritten according to the journal's guidelines for structured abstracts. The method/methodology should also be mentioned here.	Done, see above.
3- The introduction needs to be restructured to reflect the research aims and a brief description of the research design.	The introduction has been restructured to respond to this request.
(4) The number of subheadings is too many. I would recommend the subsections, which start with the number 3 and end with the heading number 9, be packed under two main headings: results and discussion.	We agree with this comment. But, given the complexity of the issues under discussion, we have not found an easy way to resolve this issue. We have used capital letters to signal the start of main sections in the paper. We have labelled all the text which used to start at the old section 3 as RESULTS OF THE LITERATURE REVIEW. And we have also more clearly signalled the division into DESIRED OUTCOMES and MEANS AVAILABLE using capitals for these too.
5- The research design needs more clarification of the timeframe for the statistical analysis and the methods used to conduct results from the data yielded from such a review. The number of sources yielded from searching in the Web of Science, Google Scholar, Scopus, ProQuest, ACM digital library, and ScienceDirect databases should also be	See changes made to page 4.

mentioned. Elsevier powers ScienceDirect and ScopusTherefore, they should both mention Elsevier together. Additionally, the research design should specify criteria for including and excluding quarrying settings.	
6- The discussion section is not found,	A clear signpost to the DISCUSSIONS and CONCLUSIONS has been added.
although there are too many subsections starting from number 3 to 9 that are written as results and discussion.	See changes made against comment (4) above.
It is necessary to mention the limitations of using bibliometric analysis.	Limitation of using literature reviews as a research method are now mentioned in middle of page 5.
7- The conclusion section should provide the future direction of research based on the research limitations.	In response to this comment, we have, for instance, added new text to the conclusions about the need for a future focus on rethinking the role of markets in delivering fundamental public values (public good) in order to realign market forces with wider public interests. A 'new professionalism' is seen as necessary for unlocking interdisciplinary knowledge capable of delivering synergistic urban design.
Additional Questions:	
1. Originality: Does the paper contain new and significant information adequate to justify publication?: Yes	N/A
2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: Yes	N/A

3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?: Yes	N/A
4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: Somehow	
5. Practicality and/or Research implications: Does the paper identify clearly any implications for practice and/or further research? Are these implications consistent with the findings and conclusions of the paper?: Somehow. More development in the current research is required in this context	Implications for future research have been added to the conclusions, for instance, in the focus on the role of markets in delivering public good. Also, there is a growing need for more clarity about what 20mintue neighbourhoods entails in terms of planning and contemporary place development…etc
6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: Yes	N/A
Reviewer: 2	
Recommendation: Minor Revision	
Comments	

The paper is based on the premise that the concept of 20 minutes neighbourhood is valuable and useful in the delivery of efficient, just, beautiful places. It attempts to understand the current hurdles to its successful implementation.	This comment is to the point. The paper is intended to understand what the "current hurdles" are rather than, at this stage, setting out advice on how to tackle them, (see comment above from Reviewer 1). Detailed discussion of how to do so lies beyond the word length allowed and would require a follow-on paper.
Overall, it is a significant effort in drawing attention to the potential of this concept. It is up-to date in literature, clear in structure, rich in exemplars and wise in explaining frictions in implementation. It is one of those papers that, I expect, will be used for a long time by our professions.	Thank you for this commendation. It would be delightful if this turned out to be the case,
My key criticism to it is that whilst it comes to 4 useful fallacies, it doesn't spend enough time to reflect on them, whilst this is the true need for a paper of this type.	The paper only refers to one fallacy, the fallacy of promixity. The critique of the other supposed relationships is that there isn't empirical evidence in the literature reviewed to establish cause and effect. This is explicitly stated in the paper.
Of these 4 –definition; distinction goals/means; impact and choice – I would say the second is the one that deserves most attention, and has to do with the delivery of this concept. It is not, this should not be misunderstood, the most important. They are all exceptionally important,	"definition, distinction goals/means, impact and choice" aren't fallacies exactly, though they could each be called issues where there are currently taken-for-granted assumptions which need to be addressed, see above.
yet definition, impact and choice are areas on which we know a lot already. In my view, the delivery of the concept is where all hurdles regarding this concept concentrate, and have to do with the political, professional and economic systems at play.	We are sympathetic to the view stated here. It would, however, require a separate paper to unpack the impact of the political, professional and economic systems as hurdles impeding the implementation of the 20MN. We do agree that such research would be valuable.
This brings me to my main issue with the paper.	Thank you for drawing attention to this significant issue. We have attempted to raise it by the text added at the top of page 2.

It looks at the 20 minute neighbourhood as if this was, yet again, a new concept in the toolbox of city makers. Whilst it acknowledges it is not new, and mentions garden city and neighbourhood units as close relatives (I would argue these are a very narrow interpretation of a 20 mins neighbourhood, one that led to the current state of play), and then "15 mins city(ies)', 'compact neighbourhood(s)', 'sustainable neighbourhood(s')', 'walkable neighbourhood(s)', 'urban liveability' and 'retrofitting'",	
the authors dedicate the whole paper to treating it as if it were a concept that we really need to understand better.	Our position is that there is a fundamental aspect of the 20MN that needs to be understood better - what to do to address how the interplay between ends and means (cause and effect) to play out – in the absence of empirical evidence about these relationships. .
My question is: why is this the case? What is a 20 minute neighbourhood if not somewhere that is efficient, connected, walkable, beautiful and safe? Why do we keep shifting our attention from what is in front of us, what we know very well, and re-brand it over and over again?	This is a very good question. The issue raised is of fundamental importance. But it is not one that our critical review of the literature allows us to answer.

Our own personal answer is that planners and urban designers (in the UK at least) are hamstrung by the economic and political systems in which they are asked to ply their skills and expertise. These systems repeatedly frustrate what planners and urban designers say they want to achieve. When this happens, they appear to cast around for another nostrum – a word deliberately used in our conclusions – which hold out the promise of success this time round, only to find themselves frustrated yet again. And so they move on to the next proposed solution. |

	But this is a personal judgement and is drawn from our experience of working with planners and designers, not from reviewing the literature on the 20MN reported in this paper. And the issue raised by the reviewer cannot be answered by the information collated as the basis for our paper. This does not make the question raised by the reviewer any the less important or pressing. It just lies beyond the boundary of what our collated information can be used to investigate.
This inevitably takes us a step back every time we make two forward. So, of the 4 fallacies - definition, impact and choice perhaps do not need so much work. It is to understand why we don't use what we know very well that we should concentrate our attention.	We absolutely agree with this conclusion. But the information assembled from the literature for this paper cannot answer the conundrum that Reviewer 2 raises here. But it is certainly a topic worthy of further research. We have amended our paper to raise this paper, see page 3.
Why do we have a development sector that would rather build at low densities and on green sites? Why do we have a planning system that favours it? Why don't we have a profession that is trained to understand and apply confidently the good principles we have been studying for over 50 years, so that it's not prevaricated by traffic, zoning, profit? **In my view, the authors can afford to be less timid in their introduction and conclusion and ask these questions front and centre.** We need to unravel this conundrum as soon as possible or else, we'll keep spending our energies on semantics rather than moving on this much needed agenda.	Thank you for this judgement which we have briefly sought to incorporate in the revised text, see page 26.
Additional Questions:	
1. Originality: Does the paper contain new and significant information adequate to justify publication?: Yes. The paper is important and timely. It provides an original summary perspective,	

although i have comments to this regard. See below.	See responses above
2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: Yes, the paper provides an excellent overview of literature on the 20 minute neighbourhood and related themes, with a good list of examples and applications internationally.	Thank you for this commendation.
3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?: Yes. The methodology ties well with the aims and objectives of the paper. See comments below for further details	Thank you for this commendation.
4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: Yes. The analysis of benefits and limitations of the concept are clear, detailed. I have reservations on the conclusions which, I suggest, deserve more elaboration.	Thank you for this suggestion. We hope that our responses above meet with your approval.
5. Practicality and/or Research implications: Does the paper identify clearly any implications for practice and/or further research? Are these implications consistent with the findings and conclusions of the paper?: The implications are consistent with the findings, but in my view not dealt	Thank you for this observation. We hope that our responses above and the accompanying changes to our text are an adequate response to your comment – within the limitations imposed by the nature of the information (a literature review) on which the paper is based.

with the degree of depth they deserve. See comments below. This has repercussions on the introduction to the paper as well.	
6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: Yes, the paper is overall very clear, legible, and these characteristics make it also very useable. It is an important contribution that will be used for a long time as reference.	Thank you again for this very strong commendation.