A new trend for urban planning: the vision and the challenges

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Abstract The world population is expanding rapidly, causing a number of economic, environmental, and social consequences including crowd roads, higher traffic demand, and longer travel times to basic services. More than two-thirds of the world's population will live in cities by 2050. The 15-minute city concept promotes for cities where everyday destinations are within a short walk or bicycle ride. Walking to daily destinations not only reduces the environmental impact of transportation, but it is also associated with a variety of positive effects on individual psychological and physical health, as well as social capital. The idea of a 15-minute city offers an excellent, straightforward, flexible, and widely accepted perspective of urban living that has recently emerged around the world. Public schools, green spaces, libraries, super markets, department stores, employment locations, basic healthcare, and areas for entertainment are examples of services that could be found inside the 15-20 minute city. The goal is to establish dynamic and liveable communities, boost the economy, encourage social cohesiveness and sustainable development, and improve citizens' health and well-being. This research focuses on identifying the major opportunities and challenges to ensure that the concept of a 15-minute city can be applied to urban planning to reduce energy use in cities and air emissions in order to address climate change.
Keywords: 15 minutes city, urbanization, urban planning, sustainable development

1. Introduction

Nowadays, cities have been in the forefront of scientific research in terms of urban planning and accessibility, and they are currently embracing diverse concepts of sustainability (Ramirez and Grijalba, 2021). Cities that can be reached in 15 -20 minutes present a new opportunity for reforming the urban system in order to address several existing concerns, such as aging populations, energy conservation, and air pollution. A revised concept of urban accessibility, along with the reconsideration of public spaces and ways of transportation to reach neighborhood products and services, serve an entry point not only for confronting new threats, but also for rediscovering a sense of community, particularly at the neighborhood dimension (Lai et al., 2020; Gaglione et al., 2022). The '15-minute' city is an evolution of the 'neighbourhood units' concept pioneered by American planner Clarence Perry in the 1920s. This model was re lunched in the 2010s, in the context of studies on walkability as an aspect of urban quality of life and accessibility to products and services, but it gained further acceptance during the Covid-19 pandemic, when the implementation of extremely strict health protocols, social distancing, lockdowns, and restrictions on movement indicate the vulnerability of numerous urban environments (Allam & Jones, 2020; Moreno et al., 2021).The 15-minute city is gaining political and social importance because it generates a 'human-scale' city consisting of energetic, people-friendly, 'complete' neighbourhoods. It entails decentralizing city activity and services and bringing better living conditions to neighborhoods throughout the entire town (Pozoukidou and Chatziyiannaki, 2021).

In order to identifying the major opportunities and challenges of the "15-minute city concept", an extensive literature review was conducted. The proposed literature was carried out in accordance with the PRISMA process, which includes 27 routes and encompasses the well-defined stages of a systematic review, such as eligibility criteria and related information sources, strategy exploration, selection process, results and data synthesis (Voukkali and Zorpas, 2022). The eligibility criteria used, included both inclusion and exclusion criteria. The inclusion criteria cover: (i) research related with 15-minute city; (ii) review papers; (iii) methodical demonstration and synthesis of findings; (iv) records identified using the keywords chosen by the authors. The exclusion criteria include: (i) narrative reviews; (ii) studies that are not useful to the proposed research; and (iii) available papers in languages other than English; (iv) everything not included in the inclusion criteria.

2. The "15 minutes" cities

There are currently several cities throughout the world that adopted the "15-minute city" concept or comparable ideas (Table 1). The approaches range from 30-minute concepts to 10-minute ones. In terms of time threshold, 15 and 20 minutes are the most regularly used. More specifically, 20 minutes is widely accepted by American and Australian cities, which have low density in their suburban districts; on the other hand, 15 minutes appears to be chosen by

European and Asian towns, which are typically denser (Gaglione et al., 2023). The xx-minute city model has four essential characteristics: (i) proximity: services and products should be close and accessible in each neighborhood; (ii) diversity: land uses have to combine to supply a variety services in nearby areas of each neighborhood; (iii) density: there must be sufficient inhabitants to sustain a range of activities in a dense land area; and (iv) ubiquity: neighborhoods should be accessible and affordable to anybody who is interested inresiding in them (Papas et al., 2023).

Table 1. 15-20 minute cities

City	Goal and objective
Barcelona: the "Superblock approach"	Modify roadways within 400 square meter blocks to increase the accessibility and quality of public space for leisure activities, as well as for pedestrian and bikes
Bogotá: the "Vital neighborhoods"	It combines a network of green corridors with pedestrian and bike priority roadways, as well as traffic limitations, tactical city planning interventions, and other strategies to promote people-centered mobility and vibrant streets
Buenos Aires: the "Human-scale city"	Bringing green spaces, local food markets, health facilities, recycling sites, and other facilities to each community, as well as enhancing walking and cycling infrastructure, particularly by establishing one of the world's largest car-free zones
Melbourne: the "20-minute neighborhoods"	A Local Liveability research guided the Movement and Place concept, which placed people at the center of transportation planning. According to the city's research, the maximum time that individuals are allowed to walk to meet their daily needs locally is 20 minutes
Milan	Streetscapes are being improved through open spaces and roadways programs, a sustainable urban mobility strategy, and the implementation of a 30 km/h city speed restriction (down from 50 km/h) on 60% of the transportation network
Paris	Is transforming the city into a network of neighborhoods where residents can find all they need within a 15-minute walk or ride from their homes.
Portland: the "Complete neighbourhoods"	80% of inhabitants should be able to walk or bike to all of their fundamental daily, non-work needs, with adequate pedestrian or bicycle access to transport

The adoption of 15-20 minutes city approach could to make a positive impact to urban planning and development to the following aspects (Balletto, 2022). This idea could enhance the local economy. A 15-minute city offers greater pedestrian circulation on local main streets, greater local and diverse job options, and efficient use of buildings and public space. Furthermore, it gives a more equal, accessible city and an enhanced feeling of community. From prioritizing the most underserved neighborhoods to developing streets and active transportation networks for the most vulnerable users, equity and inclusivity are at the core of any effective 15-minute city approach. Similarly, it enhances wellbeing and health, not only because of the multiple physical and mental health benefits of active travel, but also due to reduced transportation emissions and improved air quality. A 15-minute approach will eliminate needless and unwanted travel and encourage a modal shift away from private vehicles, reaping all the benefits of green and healthy transportation as well as cleaner air.

However, the implementation of 15-minute cities could face drawbacks such as issues with equity, feasibility in areas with low population density, difficulty in implementation given that land-use patterns and infrastructure are currently in place, and financing challenges.

3. Conclusion

The 15-20 minute city concept requires an integrated approach that includes transportation strategy, urban design, and policymaking. Government, local authorities, non-profit organizations, investors, small- and medium-sized enterprises, and the academic community have to collaborate. Walkable and bikeable areas should become the norm, not the exception, and the "15-20 minute city" idea must play an essential part in urban debates.

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