

8th INTERNATIONAL CONFERENCE
"TOWARDS A HUMANE CITY"
New Mobility Challenges
Novi Sad 11th and 12th November 2021

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15-MINUTE CITY CONCEPT OVERVIEW AND TRANSFERABILITY

Key Words

15-minute city
City of short distances
Walkable city
Smart city
Humane city

Abstract

The 15-minute city is a concept that first emerged in response to dispersed urban development, where increasingly long car trips between daily activities such as living, working, recreation and shopping are considered acceptable. The concept builds on the idea that people who spend less time on daily journeys will live better and use less energy. Most elements of the concept have been present in the theory of urban planning for almost a century now and stem from the need for efficient organization of residents considering limited time and opportunities for daily travel.

The concept of 15-minute city returned in focus during the COVID-19 crisis and lockdowns, when countries and cities introduced measures to restrict movement of residents close to their homes. In this specific situation some cities recognized the need and opportunity of the situation to rethink the design of urban areas with a clear goal of ensuring better local accessibility.

The paper presents an analysis of key initiatives that emerged in last two years as a part of the concept. It compares the approaches, their key elements and implementation. Based on this, the paper proposes how elements of the concept could be transferred and integrated into current planning practice in Slovenia.

1. INTRODUCTION

The 15-minute city is a concept that is currently widely echoing in literature all around Europe. It emerged in response to the development of urban areas in recent decades, where the key daily programs such as living, working, recreation and shopping are separated 30 minutes or more by car, public transport is slow or non-existent and cycling and pedestrian networks are unconnected, low quality and quite often even dangerous.

Some elements of the concept have been present in the theory of spatial and urban planning for more than a century under different names and stem from the need for efficient organization of living, work, care of residents, considering limited opportunities for daily travel. The principles of ensuring the accessibility of various programs in pedestrian (and bicycle) accessibility are systematically and continuously present also in the context of the planning of residential neighbourhoods in the post-war years. However, in practice the importance of these concepts has been lost in recent decades due to the significantly improved accessibility of the population to the car, the development of the road network and the land use policies that allowed settlement dispersion and considered acceptable accessibility of work, school, and other programmes only by car.

The principles of cities of short distances were based as a response to ongoing dispersion of population and programs by development of the concepts sustainable city and sustainable mobility, as well as sustainable urban mobility planning [1–3]. Many national and city level policies have sought to reduce car dependence and encourage the development of vital urban areas and cities based on walking, cycling and public transport with various success.

A new push to the development of the concept around the world took place during the first waves of COVID-19 crisis, when many states and cities have introduced measures restricting the movement of the population in the vicinity of their residences. Some cities have recognized the need and potential to start renovating urban areas comprehensively with a clear goal of ensuring accessibility of daily activities within the walking distance. Namely, it turned out that the current accessibility of the population to key programs is very diverse between urban areas, and thus also the quality of their living can vary significantly between them.

2. METHODS

The paper presents an overview of the approaches to the concept. An overview of scientific and professional literature was prepared to search for examples of good practice. The search used keywords that are directly or indirectly related to the concept, namely: 15-minute city, 20-minute city, city of short distances, walkable city. Indirectly, the following keywords often appear in papers dealing with the topic: sustainable city, smart city, humane city, post-pandemic city, walkability, active mobility, accessibility and proximity.

Scientific articles were searched in the Web of Science, Scopus and Google Scholar databases.

The set of cities and examples represents the breadth of approaches and activities that take place under the auspices of the concept. A significantly larger number of cities appear in the literature, but they follow the selected concepts. It should also be noted that many of the presented cities have previously worked on similar concepts, but recently got a new push to continue the previous activities.

3. CASE STUDIES

3.1. Paris, 15-minute city

15-minute city is a concept developed by Carlos Moreno, a professor of urbanism at the Paris Sorbonne. It is based on the previous work of the author, who dealt with the topic of the so-called "chrono urbanism", i.e., urban planning based on the time availability of residents to key programs. In its work, he tries to improve the quality of living in cities and reduce the negative impact on the environment. Moreno's basic thinking [4] stems from the assumption that residents who spend less time on daily trips will also use less energy. Less travel demands would also free up space in cities, which could serve as a meeting place instead of traffic.

The concept is based on four key areas: optimal density, proximity, diversity, and digitization. Moreno defines a series of orientations for each of the four areas. The proximity of key programs and services, as the central area of the concept is, according to the author, understood spatially as well as temporally. Most programs for such accessibility cannot be evenly distributed throughout the space, but it is necessary to create local nodes, in the hinterland of which residents from the surrounding areas can quickly access the programs.

The so-called multimodal use of basic infrastructure also plays an important role in this, which the author explains in the case of the use of primary school playgrounds in the afternoon as recreational areas for all residents. This coincides with the concept of "crono urbanism", which understands the city planning not only as a spatial, but also a temporal challenge.

3.2. Melbourne, 20-minute neighbourhood

The 20-minute neighbourhood is a concept within Melbourne's long-term development strategy called Melbourne 2017 - 2050 [5, 6]. The concept aims to provide more inclusive, vital, and healthy neighbourhoods in the city.

Within the concept, the characteristics that a 20-minute neighbourhood are defined in terms of safety, accessibility and connectivity for pedestrians and cyclists, offering quality public space, offering services that support local life, ensure access to public transport, ensuring housing and population densities that enable the operation of local services and transport, supporting vital local economies.

A key role in the concept is played by local centres, which are called neighbourhood activity centres. In traditional Australian cities local centres were established as main streets (high streets) or the village centres. The role was later taken over by local

shopping malls with larger gravitational surrounding based on accessibility by private car. The plan is based on identifying and strengthening the centres that emerged from these predecessors and could take on the role of 20-minute neighbourhood centres in the future.

3.3. Barcelona, Superblock

The concept of superblocks has been introduced in Spain over the last decade in various forms and sizes [7, 8]. It has gained new momentum in conjunction with the 15-minute city concept, building on similar starting points and setting similar goals: restoring space for people, reducing motorized transport, promoting sustainable mobility and an active lifestyle, ensuring urban greening, and mitigating the effects of climate change. Superblock [7] represent the basic cell composed of city and provide a sustainable and healthy environment, compact and connected neighbourhoods with mixed land use and a high potential for social capital.

Superblocks are formed as larger urban areas, in the case of Barcelona about 400 x 400 meters or 3 x 3 building blocks, within which traffic within the area is calmed and limited to exclusively local access by residents. All transit traffic is directed to the edge of the superblock. Due to the reduction in the amount of traffic, it is possible to rearrange areas previously occupied by traffic into public space and within them there are greater possibilities for arranging green areas.

Since 2019, three pilot superblocks have been introduced in Barcelona, and the city plans to gradually introduce the concept in the entire city area, i.e. possibly 503. Mueller et al. [7] showed that the introduction of the concept significantly improved the situation in the city in the following areas: physical activities of residents associated with daily mobility, air quality, noise pollution, accessibility of residents to green areas and temperature (overheating) in the streets.

Due to specific urban design of Barcelona and its distinctive building blocks, the concept seems difficult to transfer to other cities with a less geometrically clean structure. However, the experience of other Spanish cities, where similar arrangements, such as Vitoria-Gasteiz, have been piloted, shows that transfer of the concept to other, more organically grown cities is also possible.

3.4. Milan, Post COVID city

For decades, the transport and urban development of Milan have been based on the traditional development of mobility. The city was aware that there was a need for more walking and cycling among the citizens, but investments in these transport modes were small [9].

With the COVID epidemic the city responded quickly to the onset of the epidemic and sought to take advantage of the changed situation not only for temporary but for deeper structural changes. Urban reorganization should not only provide a short-term operational response but should also provide the conditions for improving the

city's preparedness and resilience to future critical situations that may arise. The city response included five main guiding principles: governance, economic development, public services, labour and sustainable development.

Overnight, the city redirected investment in the development of new bike paths and began redeveloping pedestrian streets. The planners tried to create areas that allow commercial, recreational, cultural and sports activities of the residents while respecting the appropriate physical distance and restrictions. It was therefore a matter of simultaneously strengthening local centres while restricting the movement of residents between different urban areas.

By reducing the use of passenger cars and more residents walking and cycling, the next step was to replace parking spaces with smaller public space arrangements, the so-called parquets. City officials were surprised to find that local shops and restaurants did not oppose the renovations, but based on the positive experiences of other streets, bar owners even began to take initiatives for such arrangements on their street as well.

3.5. Gothenburg, One-minute city

The minute city is named after one of the activities within the framework of urban experiments supported by the Swedish government under the auspices of the Street Moves project [10]. The purpose of the activity is to rearrange traffic areas, as the government intends to significantly reduce the importance of motorized vehicles in cities in the coming years.

Interventions vary according to local specifics and the needs of residents and users. In most cases, these are changes to parking spaces in a public space for residents by adding urban equipment such as benches or picnic accessories. In some cases, however, the space is being converted into parking spaces for bicycles, electric scooters or even mobility hubs for various forms of mobility.

The project is interesting because the approach arose from local initiatives such as Parking day and in the first attempts was mostly carried out by guerrilla, without official permits but based on the needs of the local environment. In recent years, however, it has been promoted and funded by city or even national authorities.

The authors point out that their interventions complement the offer of local programs, like what the 15-minute city concept envisages. However, they point out that small and undemanding spatial interventions, which can significantly improve the quality of living in the local environment in the immediate vicinity, i.e., a minute's walk from home or work, and thus reduce travel needs.

4. RESULTS

A review of the literature shows that several concepts are being developed following the ideas of the city of short distances. They differ in their starting points, as well as in the topics they address. What they have in common, however, is that practically

all concepts try to combine elements of spatial and transport planning, and in addition, each of them addresses additional emphases from other areas.

Table 1. Comparison of approaches and addressed topics

	Paris	Melbourne	Barcelona	Milan	Gothenburg
Land use planning					
Density	X	X			
Mix of uses	X	X			X
Local centres	X	X	X	X	
Multiple space use	X		X		X
Public space	X	X	X	X	X
Service distribution	X	X		X	
Transport planning					
Street transformation	X		X	X	X
Active mobility	X	X	X	X	X
PT interchanges	X	X			
Effective PT		X	X		
Mobility nodes					X
Other					
Multiculturality	X				
Digitalization	X				
Citizen engagement	X		X	X	X
Local economy	X	X	X	X	X
Climate change			X		
City management				X	

5. DISCUSSION

As we can see from the overview, the starting points and focus of the approaches differ from city to city. Consequently, also the main considerations and actual implementations are very different. The foundation of the concept of a city of short distances is essentially an academic reflection that combines the values and knowledge of urban planning advocated by Camilo Sitte, Jane Jacobs, Jan Gehl, and other authors who advocated the focus on human in city planning. The concept is addressing poor integration of transport and land use planning and focus on private car in recent decades.

As such, many elements of the concept are already present in today's cities, also in our geographical area (central Europe) and scale (mostly medium and small sized

cities). It's elements were previously already researched [11], tested in practice and integrated in city plans in several residential neighbourhoods but then forgotten with change of values and priorities since the 1990ies.

The new push to the concept was given by the COVID pandemic, which shook the world and the cities and made the changes discussed for years finally possible. With this new situation, the topics of accessibility and local living finally got its inclusion in the political programmes of cities. The new circle can build on existing knowledge but also add the contemporary elements that shape the city life, such as increasingly present digitalization of work and services.

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