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# The Evolutive Meshed Compact City – A new framework for the 15mC in peripheral areas

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The 15mC concept is shaping new policies to improve quality of life and accomplish the energy and ecological transition of 21st-century cities. Through pedestrian-based proximity, inhabitants and city users should be able to walk to destinations catering for most of their daily needs (Moreno et al. 2021). Motorised traffic will be reduced, public space will find new patronage, retail and services will become viable at the proximity scale. The 15mC is partly based on previous planning models such as the Neighbourhood Unit (Perry 1929) and Transit-Oriented Development (Cervero et al. 2004), building on the same planning principles as the Compact City: density, proximity and mixed land use (EIT Urban Mobility 2022). Compact European urban cores already implemented 15mC solutions with some success, as in Paris and Barcelona.

The transition to a 15mC is much harder in post-war car-dependent outskirts and suburbs, where two main shortcomings of the model must be overcome. First, the 15mC is currently conceived as a self-contained “walkable neighbourhood” overlooking that cities work as open networks, even more in metropolitan contexts. Networks influence the localisation of retail and services, which are only viable where human flows concentrate within a movement economy (Hillier 1996, Berghauser-Pont et al. 2019, Araldi 2020). Secondly, in the suburbs and outskirts the “walkable neighbourhood” is challenged by the lack of key morphological pre-conditions: density, proximity to services and public transport, mixed land use, quality of walking and cycling and attractive public spaces. These pre-conditions influence people’s behaviours, through intermediate concepts like walkability, sense of place, ease of reach, liveliness (Gehl 2011, Dovey et al. 2017). The successful implementation of the 15mC in traditional urban cores could even exacerbate tensions between gentrifying metropolitan centres and left-behind outskirts and suburbs, undermining the needed unity of urban space with polarising outcomes on the socio-political arena.

This presentation will focus on a new proposal to overcome the limits of the 15mC in the suburban and peripheral areas. The starting point is the sheer impossibility (let alone the acceptability) of transforming our peripheries, made of modernist projects, residential subdivisions and activity areas, in traditional compact cities. Demographic scenarios in Europe foresee population stagnation and

ageing, with possible marginal growth in some metropolitan areas. The underlying demographic driver of massive densification of today's suburbs is simply not there. Therefore, densification should be canalised to streets where the impact is highest.

Crucially, urban peripheries and suburbs must be rethought from a human-centred point of view. The creation of compact nuclei by transit-oriented development seems at odds with the networked fabric of the pedestrian-centred 15mC. The human scale is considered only around relatively distant hubs connected by light railways. The continuity of the pedestrian flow is interrupted and opportunities for retail and services are limited to the hubs. Instead, we propose to distribute compact urban form as corridor development, along pre-existing main roads connected to wider-range mobility options and forming a meshed structure across the metropolitan area. This requires smart densification along these streets, which are further redesigned for pedestrians to become lively main streets offering a great variety of services, shops and even small-scale manufacturing. Experiments and guidelines for this transformation of public space are already available (Bertolini 2020, Ståhle et al. 2022, ADEME 2023).

Inside the meshes, the existing urban and suburban forms can be kept, with minor improvements to their internal connectivity for pedestrians and bicycles. The interaction of the meshed network of pedestrian-friendly, multifunctional and multimodal main streets, with green and blue networks is important to avoid decline of ecosystem services. The network of main streets, green/blue networks, long range transportation networks and the inside of the mesh, make up the Evolutive Meshed Compact City (EMC2). Many European urban outskirts already possess incipient networks of main streets, inherited from spontaneous growth, including pre-existing rural settlements. We need to assess the potential of these structures and propose guidelines to favour their evolution towards the EMC2.

We see the EMC2 model as a pragmatic 15mC solution for European urban outskirts and suburbs, recognizing constraints and opportunities offered by their networked nature. It also addresses the possible evolutions of the network of main streets over time: extension and retraction (as population increases or decreases), changing dynamics of usage during the day, the week or the year, acknowledging the polychronic nature of the 15mC (Moreno et al. 2021).

Research is being carried out on six European case studies in France, Italy, Sweden and Austria, to evaluate the potential of the EMC2 model and better specify it to adapt to local conditions. This contribution will thus present both the general specification of the EMC2 model and the research design which is presently employed to assess it with real-world data. Potential for the EMC2 model will first be evaluated using configurational analysis to identify the foreground network of main streets. Subsequently, morphological analysis of the streetscape and socio-functional analysis of its usage will confirm their present role as main streets. Micro-scale analysis of human usage and of urban interfaces with the public space will be used to assess the present functioning of the study areas and to identify the range of possible interventions towards a complete EMC2 model.

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