emc²
Evolutive Meshed Compact City

The Evolutive Meshed Compact City
A pragmatic transition pathway to the 15-minute city for European metropolitan peripheries

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Potential habitat network for wild bees of Gothenburg.

Agent-based simulation of pedestrian flows in a peripheral settlement.

The red network of main streets has important relations with other fundamental networks: multi-modal mobility networks ant green/blue ecological networks. Synergies and conflicts between these three structural networks must be understood to better specify the emc2 model. Urban ecosystem services modelling and agent-based simulation models will be specifically developed on test areas in Gothenburg and the French Riviera, respectively, in close cooperation with local authorities.

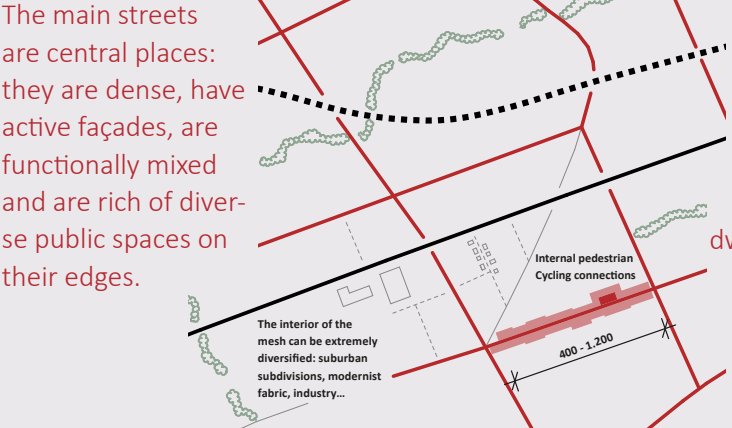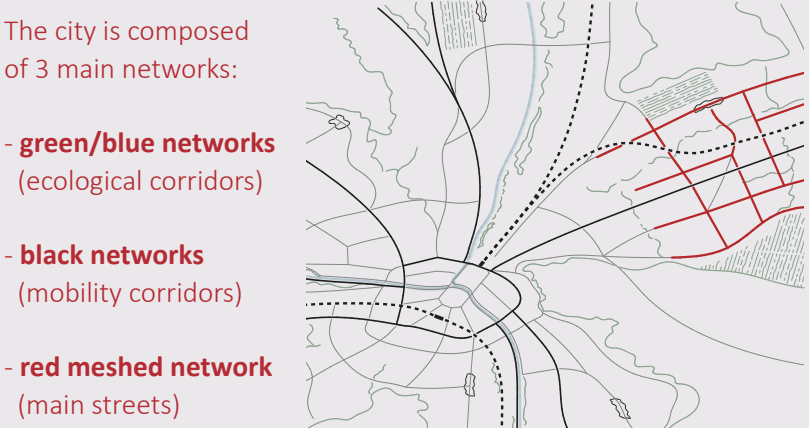Diachronic development of the municipality of Massa, Italy.

Observable networks of peripheral main streets must be understood in their historical formation. From the understanding of the underlying long-term and short-term dynamics, and considering their present situation of the test areas, possible implications for the implementation of the emc2 model can be identified, as well as the evolutive potential of the model over time.
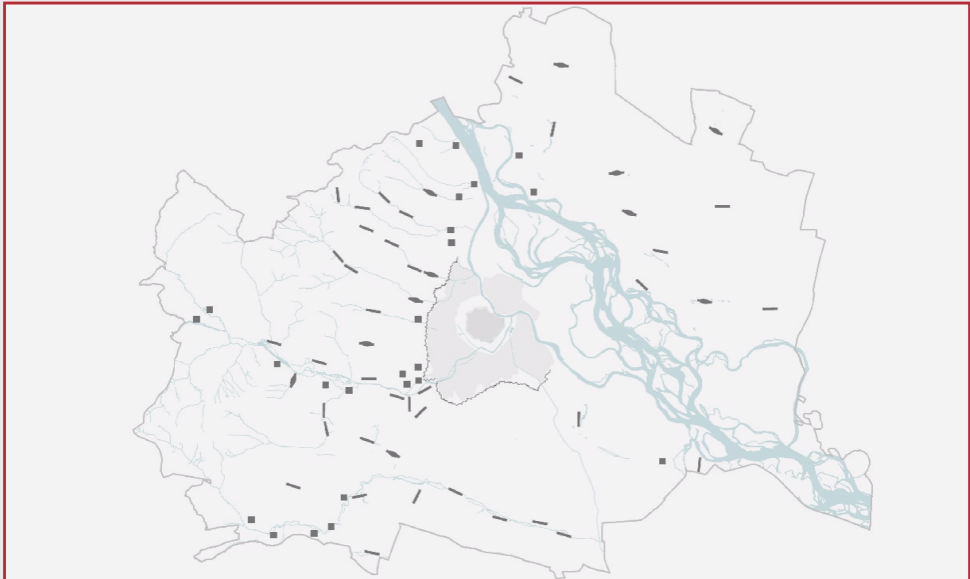
Historical linear settlements in the periphery of Vienna, as derived from XIX century cadastral maps.

ANALYSIS OF RELATIONS WITH MOBILITY AND ECOLOGICAL NETWORKS

STUDY OF HISTORICAL FORMATION

PROCESSES & DISTRIBUTIONS
SPECIA USES
BUILDING EDGES
BUILDINGS
BLOCKS & PLOTS
URBAN SQUARE
STREETSCAPE

The emc² pattern language

METRO AREA
CITY
NEIGHBOURHOOD
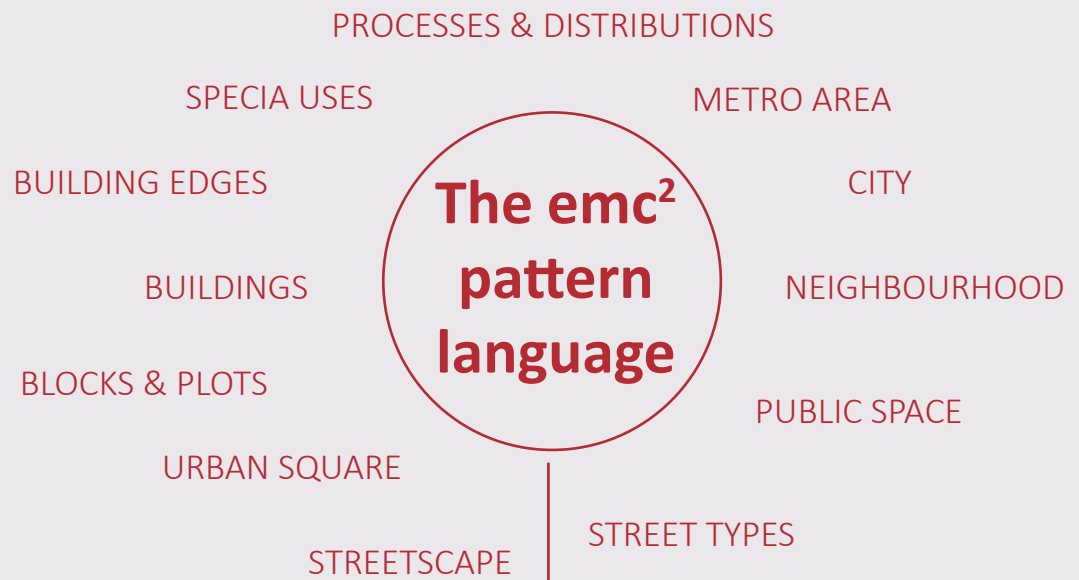PUBLIC SPACE
STREET TYPES

emc²: model - development

The 15-m city has strong prerequisites in terms of urban form and spatial organisation of the physical city, which should be integrated in any transition strategy for suburbs and car-dependent outskirts.

The city is composed of 3 main networks:
- **green/blue networks** (ecological corridors)
- **black networks** (mobility corridors)
- **red meshed network** (main streets)

The main streets are central places: they are dense, have active façades, are functionally mixed and are rich of diverse public spaces on their edges.

Goal: Every city-dweller and city-user within 15-m walk from a main street

The emc2 is a new model for its implementation in the loose structural networks of peripheral locations. It envisages compact urban forms as corridor developments based on existing main roads, forming a meshed structure across the metropolitan area. The first phase of the research is the detailed specification of the emc2 model.

Generalization of findings

Generalisation is here the passage from the specific to the general, from what is learned on a given case study to what could be applied to all case studies and, beyond, to all European cities wishing to implement the emc2 model. The assessment of the theoretical model in the light of the obtained results is an essential aspect of generalisation of findings.
A second objective is to produce assessment and intervention guidelines for the use of urban practitioners. In order to include all the scales of the analysis (metropolitan, sector-wide and local) and to respect the coherence of the overall model, guidelines could be produced in the form of a pattern language.

USAGE ANALYSES, 3D MODELS AND PROJECTS IN TEST-AREAS

ASSESSMENT FOR POTENTIAL OF EMC2 IN METROPOLITAN AREAS
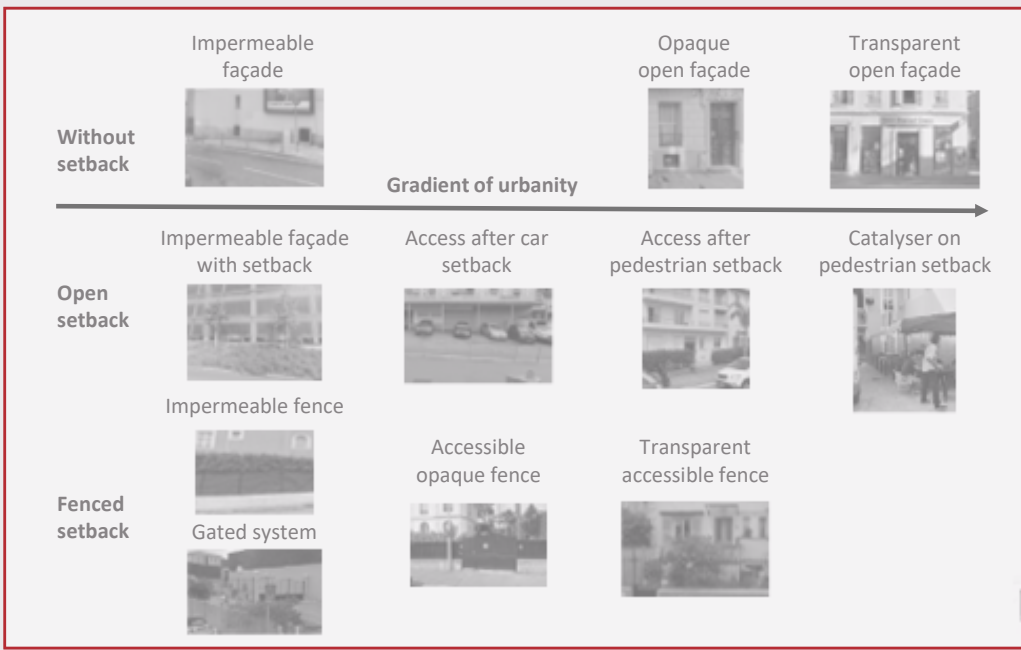
Typology of public-private urban interfaces to be applied to the analysis of test areas.

Test areas particularly close to the emc2 model will be analysed at a much finer scale. Their present form and human usage will be assessed as well as possible transformations, through fieldwork, morpho-functional analysis and 3D-models. The goal is to understand the observable advantages and drawbacks of these almost-emc2 examples, quantifying their contribution to the objectives of the 15-m city. Project proposals for a full implementation of the emc2 model will be developed in close cooperation with institutional partners.

Following model specifications, researchers will identify the emc2 potential in six European metropolitan areas : the French Riviera and Lille-Roubaix-Tourcoing (France), Gothenburg (Sweden), the Versilia conurbation and Florence (Italy), Vienna (Austria). Geospatial analysis is necessary to identify the foreground street network, the morphological and functional conditions around them, as well as the sociodemographic potential around these main axes. Incipient networks of peripheral main streets will be selected as test areas for further analysis.

The Urban Parterre Model, a fine scale 3D model integrating form and usage, to be further developed for suburban aeras.

Multiple-variable and multi-scale analysis of build density and street centrality in Gothenburg.

Bridgeness of the street network in Versilia using normalized Kemeny-based centrality.