

Combined assessment of energy systems and urban planning to evaluate the long-term impact of urban development

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▶ To cite this version:

Matthieu Denoux, Edi Assoumou, Nadia Maïzi. Combined assessment of energy systems and urban planning to evaluate the long-term impact of urban development. Energy and Society in Transition: 2nd International Conference on Energy Research and Social Science, May 2019, Tempe, United States., 2019. hal-02180948

HAL Id: hal-02180948

https://hal.science/hal-02180948

Submitted on 11 Jul 2019

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Agence Nicolas Michelin & Associés

planners when

considering urban

evolution?

Retrofitting policy – Growth levels

Transportation

Heat networks

policies

Creation of **scenarios**

Nature and

artificial areas

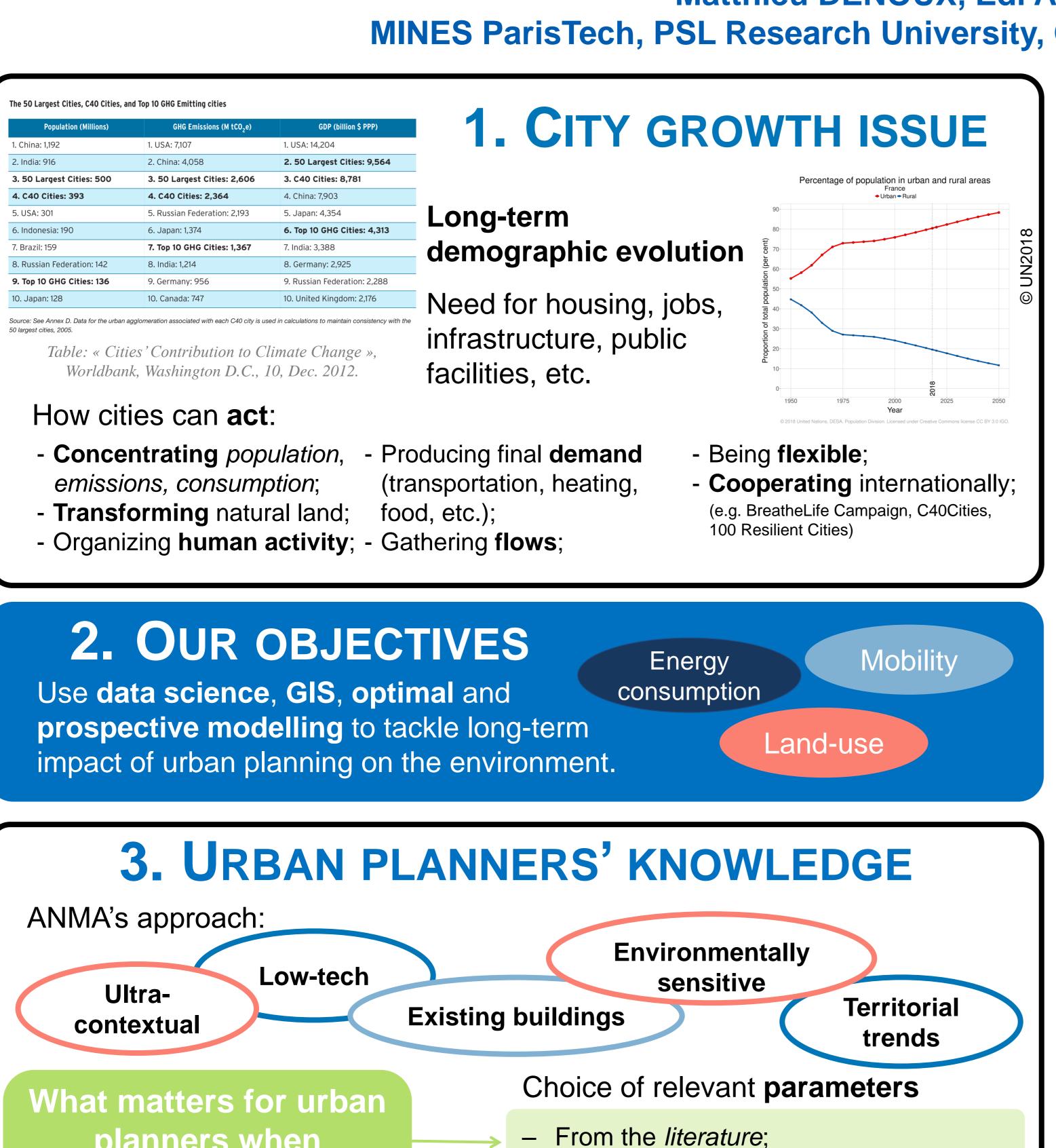
equilibrium

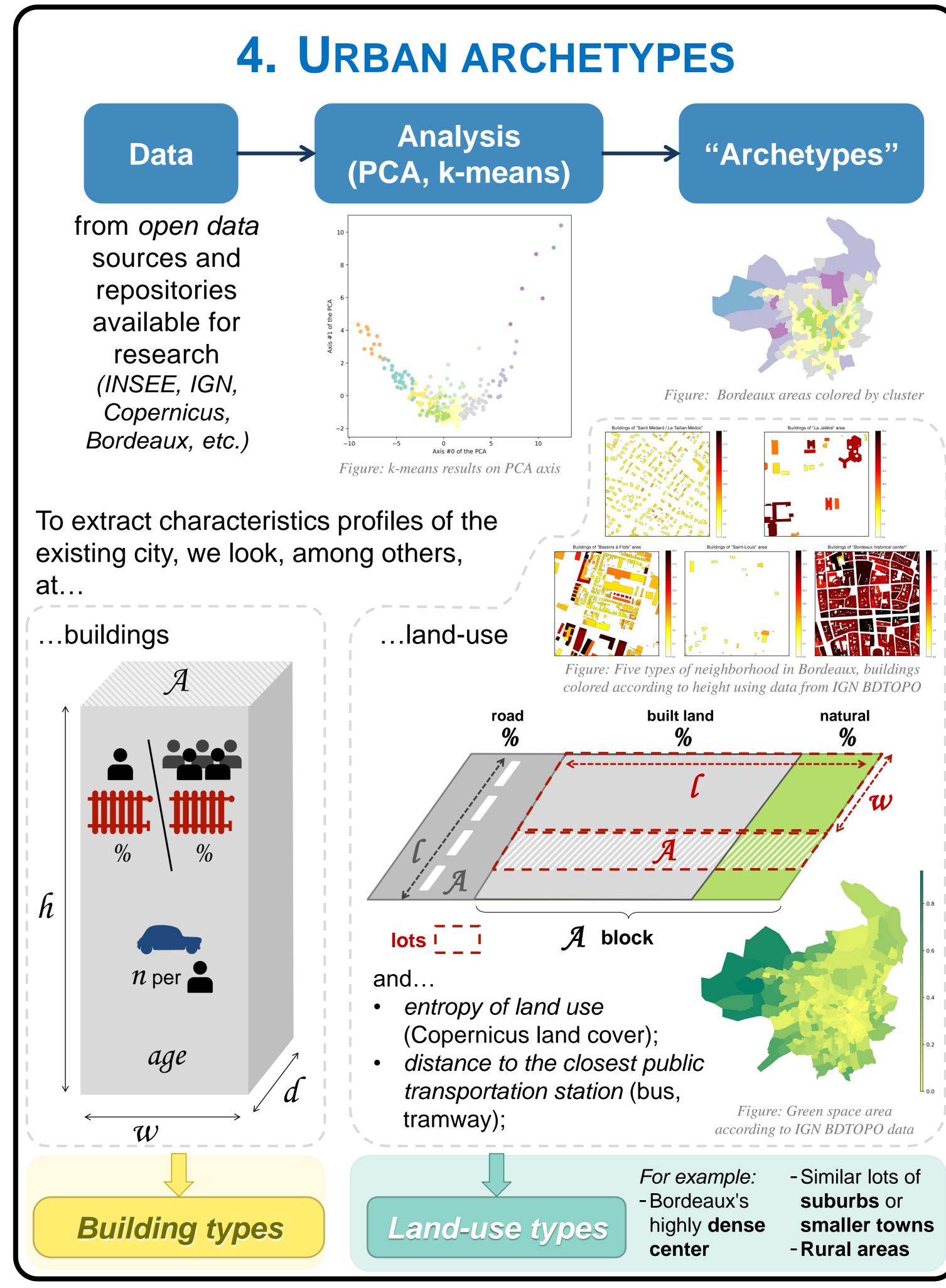
COMBINED ASSESSMENT OF ENERGY SYSTEMS AND URBAN PLANNING TO EVALUATE THE LONG-TERM IMPACT OF URBAN DEVELOPMENT

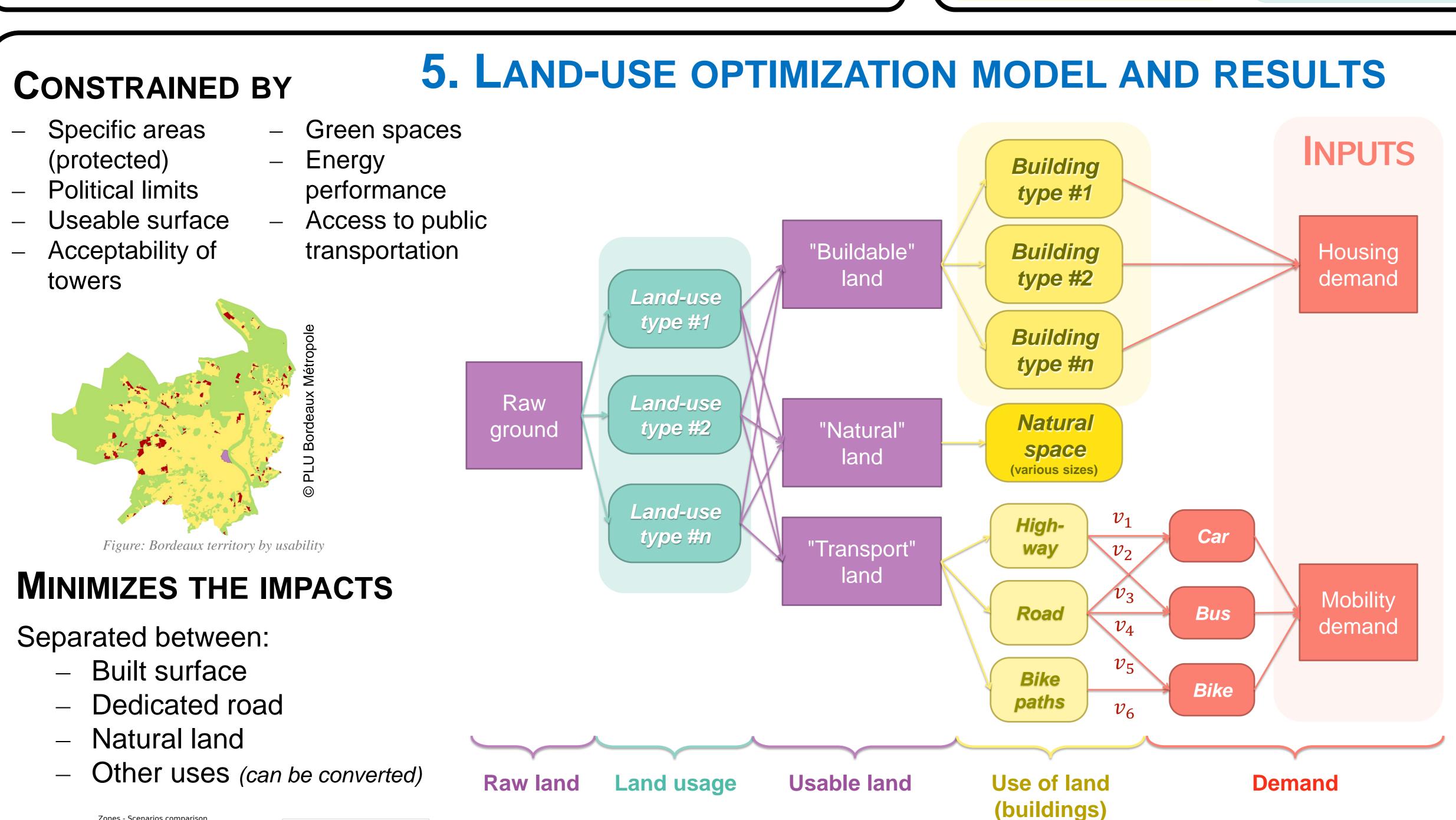




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From what urban planners use

Realism of modeling outputs

south-west **France**);

Choice of a specific city (Bordeaux in

and the studied territory's reality.

Link between data collection, processing

and look at.

Possibility to change final demand to correspond to lifestyles, policies or specific scenarios

DEMAND DRIVEN

Figure: INSEE demographic trend (blue) for Gironde

department where Bordeaux is located against a

doubling evolution trend

Population rise generates:

Job demand

Housing demand

School demand

Mobility demand

1300000

Dense city around Bordeaux Dense city around Bordeaux (NT) Distant activities centres Distant activities centres (NT) Distant cities (greener, less dense various activities) Historical center of Bordeaux Historical center of Bordeaux (NT) Less dense cities with various land-uses Recent city rather dense farther (activities) Saint Aubin de Médoc (NT) Saint Médard en Jalles Saint Médard en Jalles (NT) Figure: Land-use results (right in Perspectives block: buildings results)

Activities centres

Zones - Scenarios comparison

City center high and dense Dense collective housing, small building in the suburbs Dense collective housing, small building in the suburbs (NT) High dense inscribed historical centre High dense towers High dense towers (NT) Individual houses less dence (rural only) Individual houses less dense (periurban/rural) Le Lac (3) Le Lac (3) (NT) Small individual housing in the suburbs (terraced or isolated) Incomplete

Activities centre

results

Perspectives

 Run the model on all cases Enhance the archetypes

Communicate to urban planners (project on a map)

Compare with other French cities

With additional constraints:

- Activities
- Mobility demand modes
- Public buildings
- Health (cf. World Health Org. recommendations on green spaces)