

# Coupling Microsimulation and LUTI models

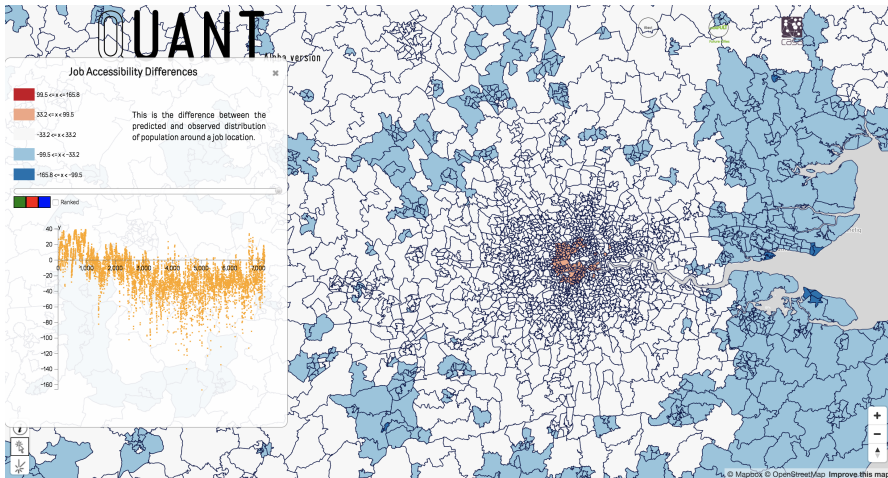
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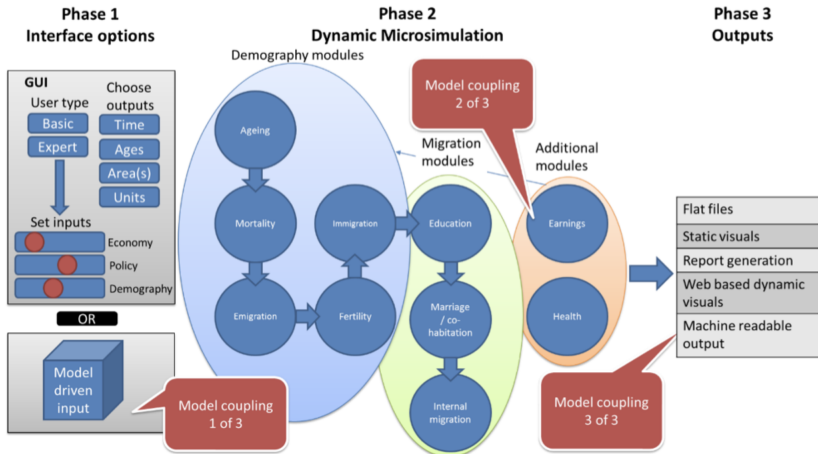
<sup>1</sup>CASA, UCL

<sup>2</sup>UPS CNRS 3611 ISC-PIF

<sup>3</sup>UMR CNRS 8504 Géographie-cités



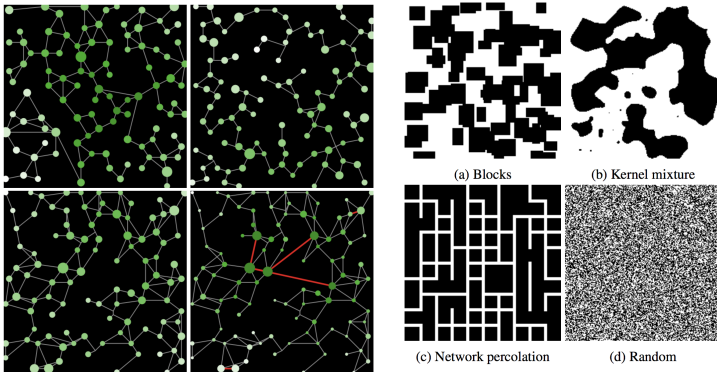
QUANT land-use transport model for Great Britain developed at CASA  
(PI Michael Batty, Urban Dynamics Lab EPSRC project)



SPENSER population microsimulation model (population synthesis and projection) developed at University of Leeds (PI Nik Lomaks, ATI project)

scala library for spatial sensitivity analysis

[github.com/openmole/spatialdata](https://github.com/openmole/spatialdata)



Raimbault, J., Cottineau, C., Le Texier, M., Le Néchet, F., & Reuillon, R. (2019). Space Matters: Extending Sensitivity Analysis to Initial Spatial Conditions in Geosimulation Models. *Journal of Artificial Societies & Social Simulation*, 22(4).

## *Heterogeneity of models and implementations*

→ integration into the OpenMOLE model exploration open source software `next.openmole.org`



*Enables seamlessly (i) model embedding; (ii) access to HPC resources; (iii) exploration and optimization algorithms*

- Discuss a scala implementation of fast statistical algorithms for population synthesis (IPF, QRIS) and simulation (matrices updates)
- Discuss OpenMOLE integration of microsimulation models
- Discuss spatial sensitivity analysis in the context of microsimulation