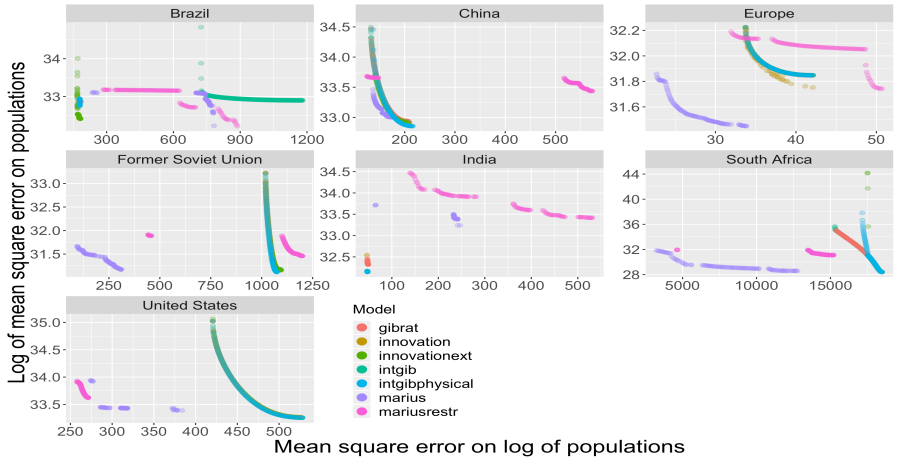
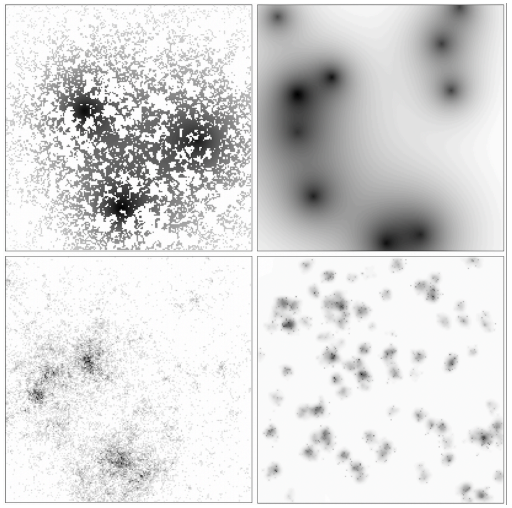
Evolutionary approach to systems of cities



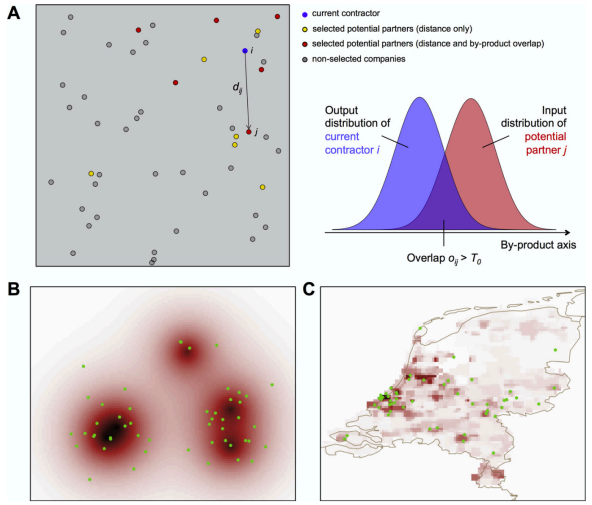
Multi-modeling urban growth

Raimbault, J., Denis, E., Pumain, D. (2020) Empowering Urban Governance through Urban Science: Multi-Scale Dynamics of Urban Systems Worldwide. *Sustainability*, *12*, 5954.



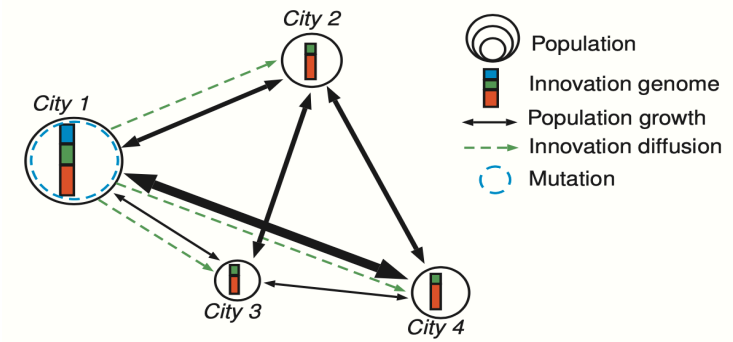
Benchmark of urban morphogenesis models

Raimbault, J. (2020). A comparison of simple models for urban morphogenesis. *arXiv preprint arXiv:2008.13277*.



Agent-based models for sustainability

Raimbault *et al.* (2020). A spatial agent based model for simulating and optimizing networked eco-industrial systems. *Resources, Conservation and Recycling*, *155*, 104538.



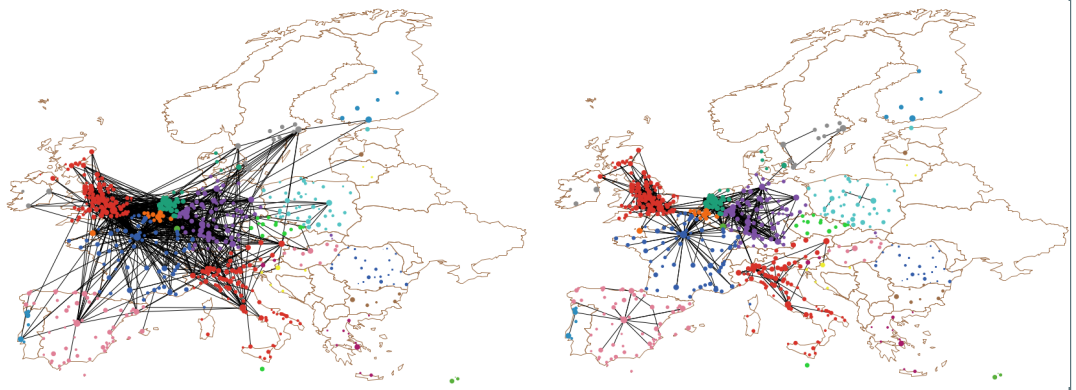
Urban evolution model

Raimbault, J. (2020). A model of urban evolution based on innovation diffusion. *Artificial Life Conference Proceedings* 2020 NO. 32, 500-508

Urban firm networks generative model

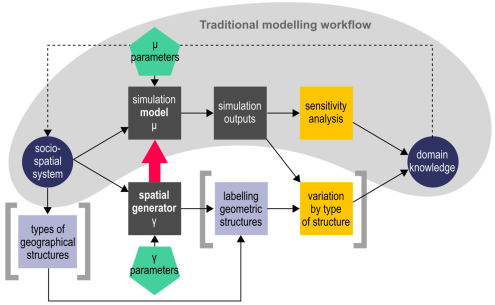
Raimbault, J., Zdanowska, N., Arcaute, E. (2020). Modeling growth of urban firm networks. *arXiv preprint arXiv:2009.05528*.

Presented at NetSci 2020.



Model coupling and validation with high-performance computing

Spatial sensitivity analysis and synthetic data



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

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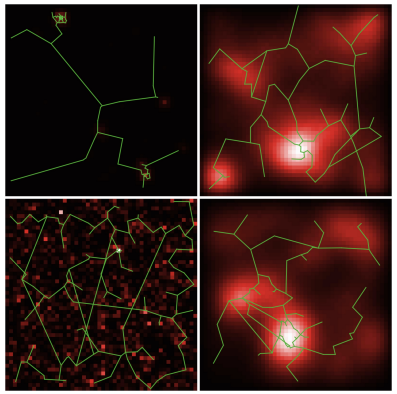

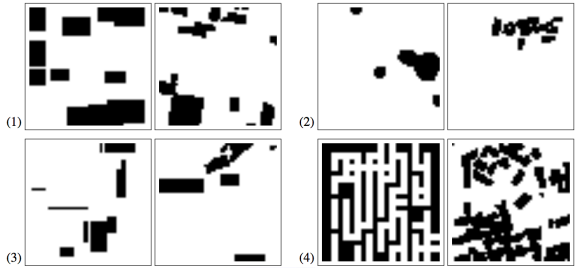

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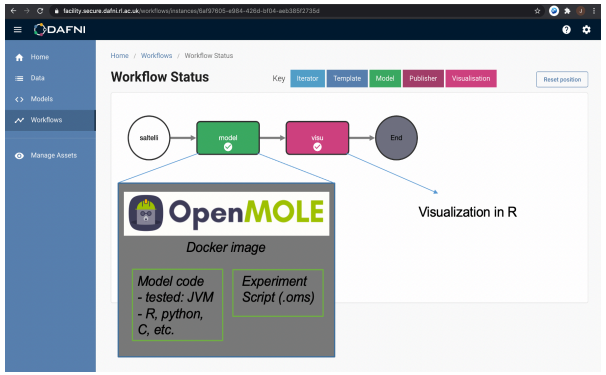
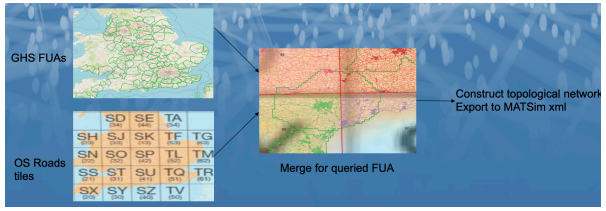
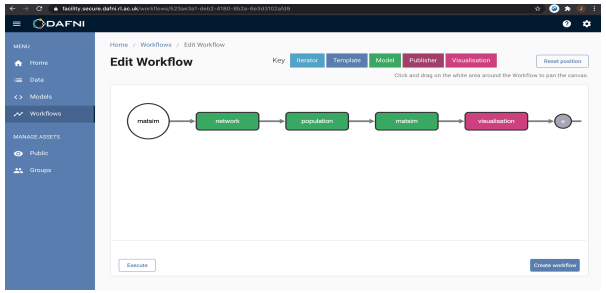
Model integration and coupling in HPC workflow engines

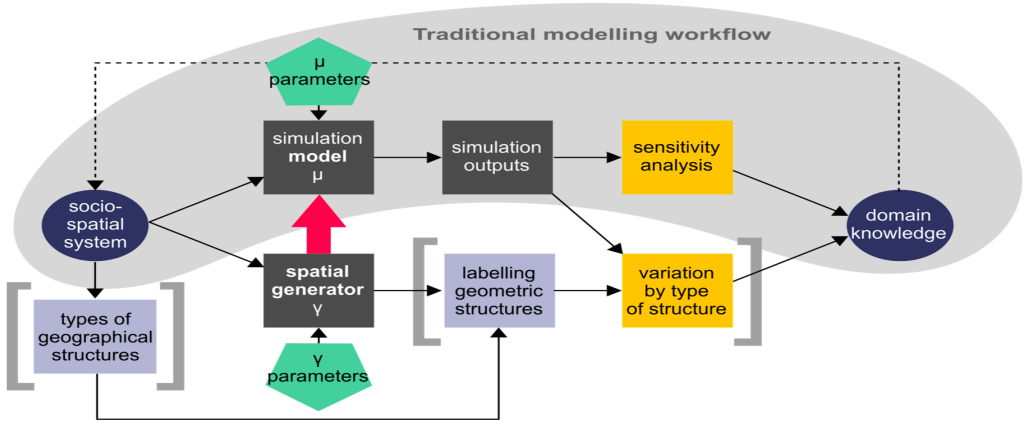


Workflow engine integration providing OpenMOLE model validation methods to the DAFNI infrastructure





Model coupling: building a four-stage transportation model by coupling MATSim (transport), SPENSER (population), QUANT (Spatial interactions) with application to health indicators in public transport



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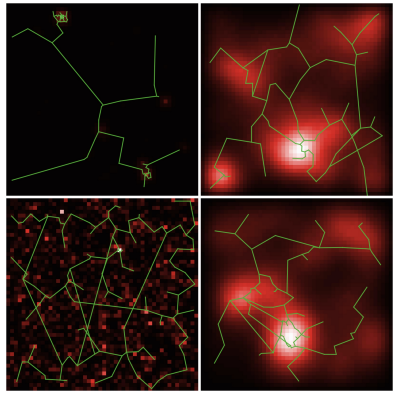

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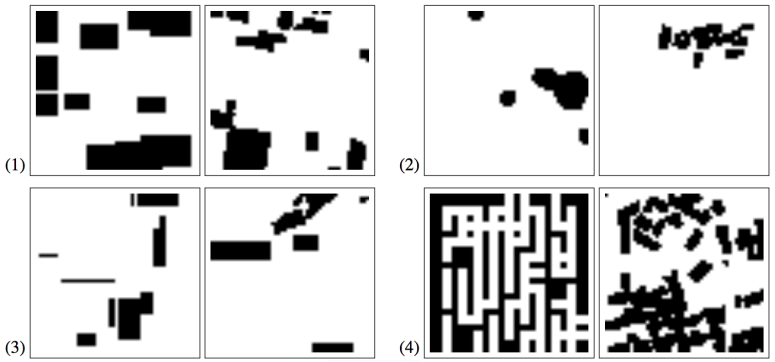

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