Work Package 2.1: *City District Information Modeling*

Goals

Work Package 2.1: City District Information Modeling

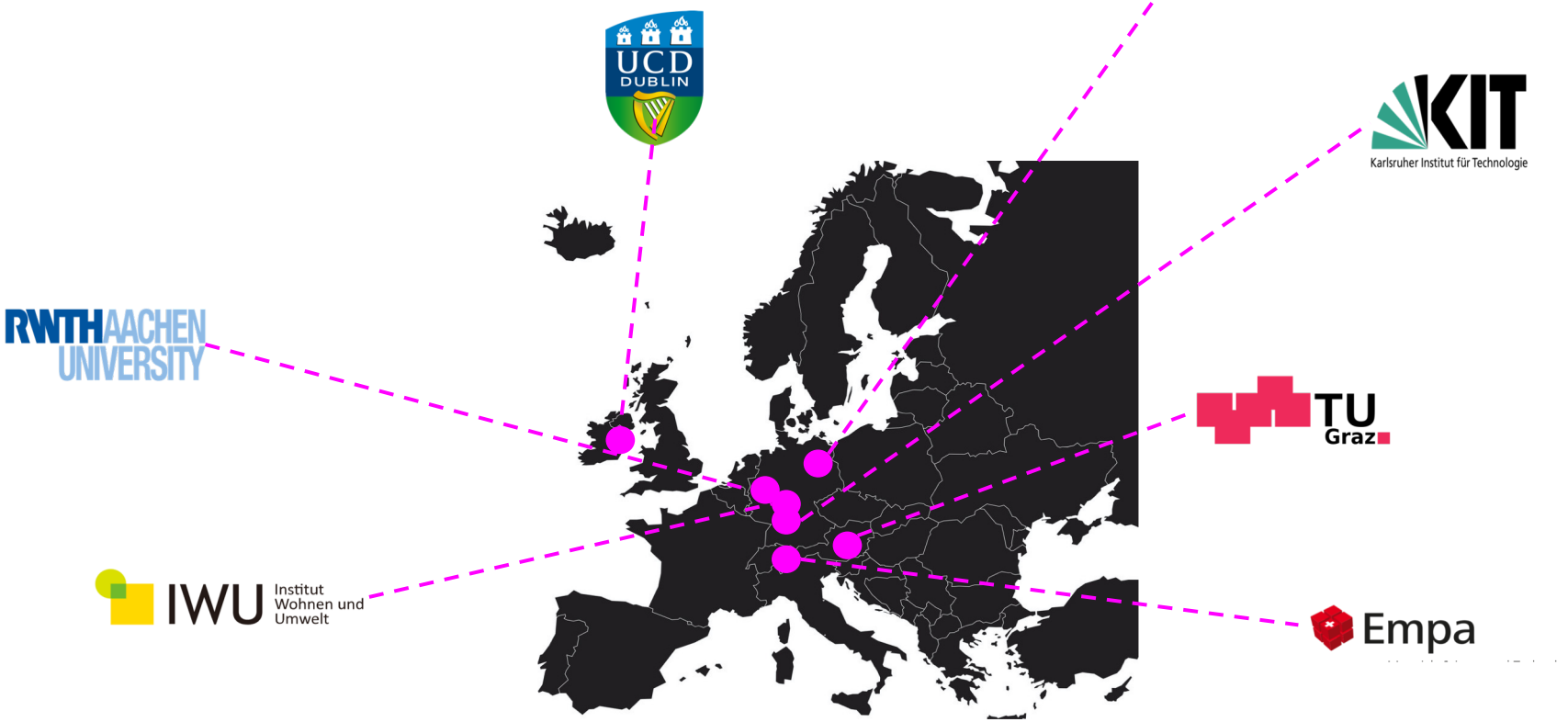
Goals:

- Definition of universal data categories
- Country specific data availability
- Uncertainty analysis
- Development of enrichment methods
- Linked data
- VR applications

[...] last 6 months

[...] last months

Overview



[...] last months

BauSIM Paper

A REVIEW ON COUNTRY SPECIFIC DATA AVAILABILITY AND ACQUISITION TECHNIQUES FOR CITY QUARTER INFORMATION MODELLING FOR BUILDING ENERGY ANALYSIS

Malhotra, Avichal; Bischof, Julian; Allan, James; O'Donnell, James; Schwengler, Thomas; Benner, Joachim; Schweiger Gerald

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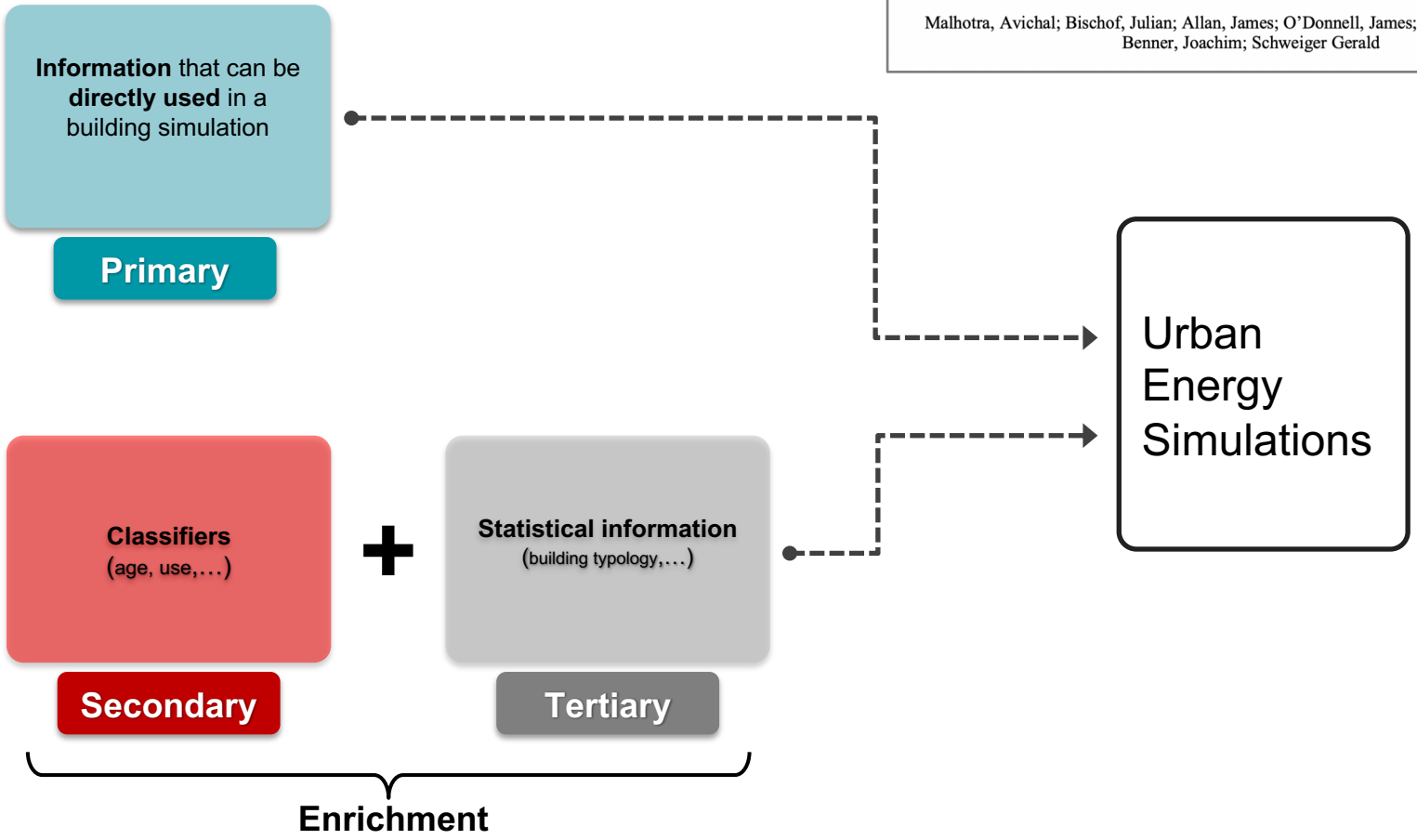
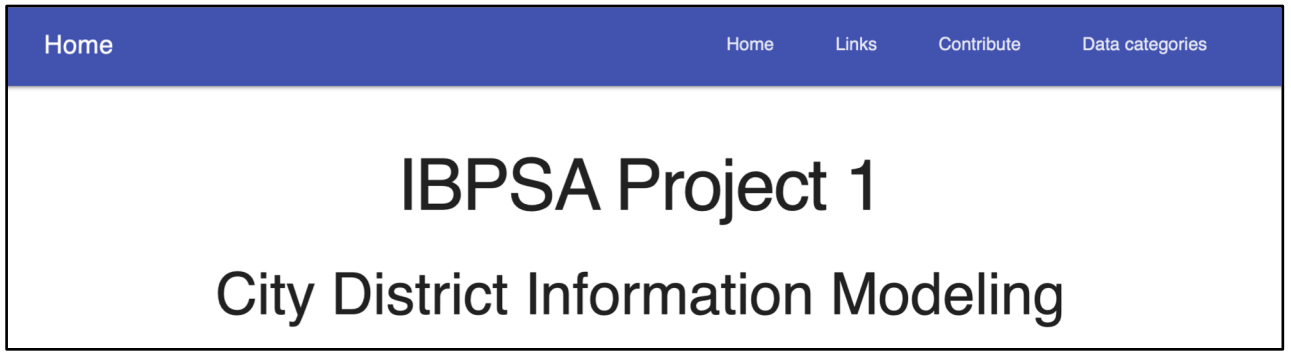


[...] last months

Website



https://ibpsa.github.io/project1-wp-2-1-cim-gis/

[...] last months

Already at the last presentation here → *we will write a journal paper*

[...] last months

Already at the last presentation here → *we will write a journal paper*

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Ten questions on urban building energy modeling

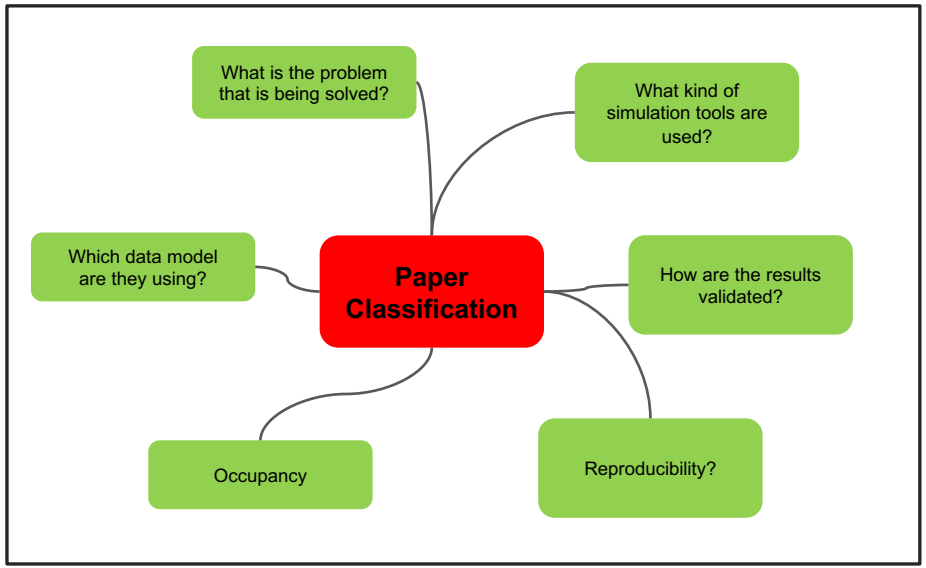
Tianzhen Hong [a,*], Yixing Chen [a,b], Xuan Luo [a], Na Luo [a], Sang Hoon Lee [a]

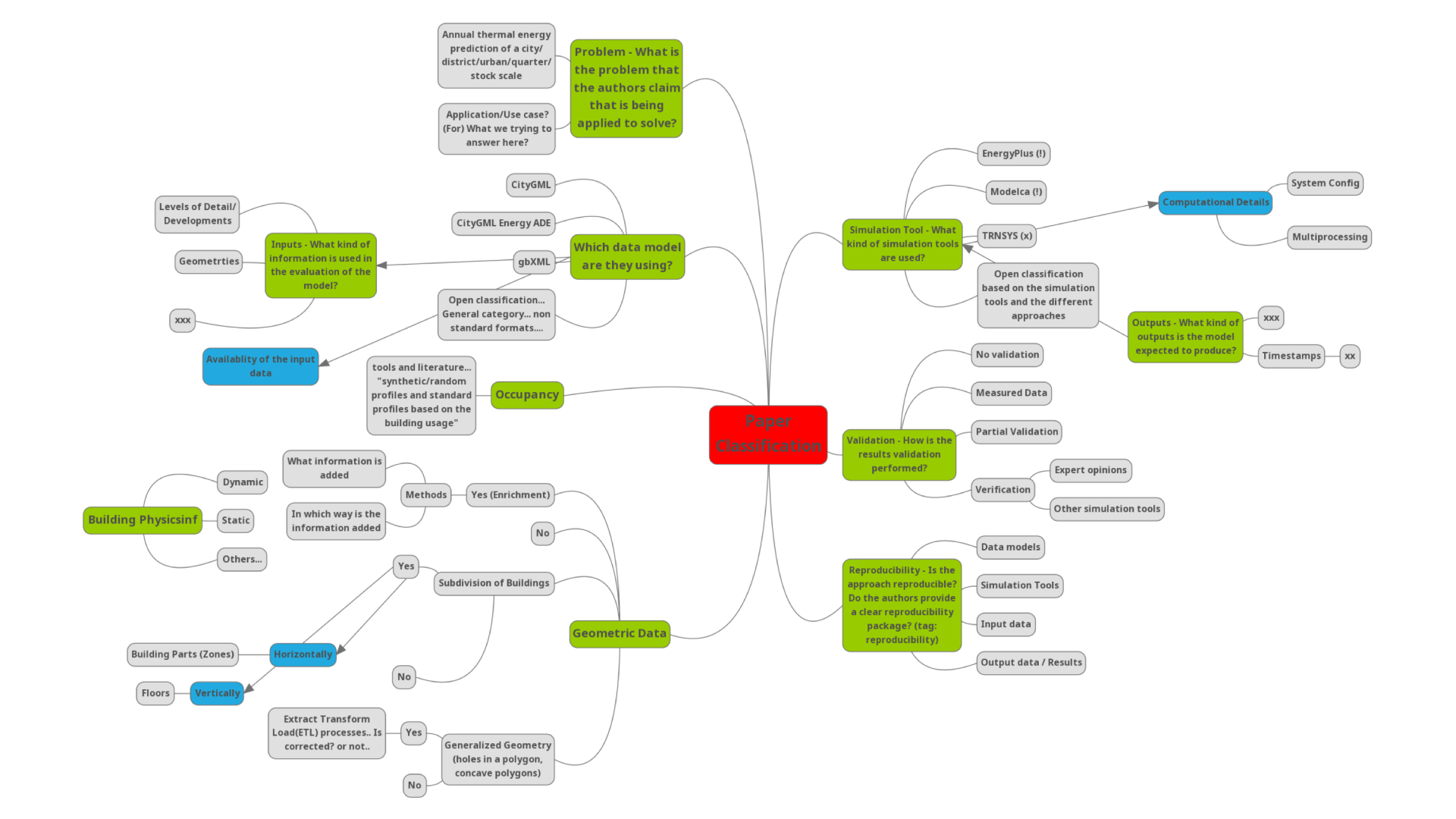
[a] Building Technology and Urban Systems Division, Lawrence Berkeley National Laboratory, Berkeley, CA, USA
[b] College of Civil Engineering, Hunan University, Changsha, China

[...] last months

Journal Paper

Taxonomy

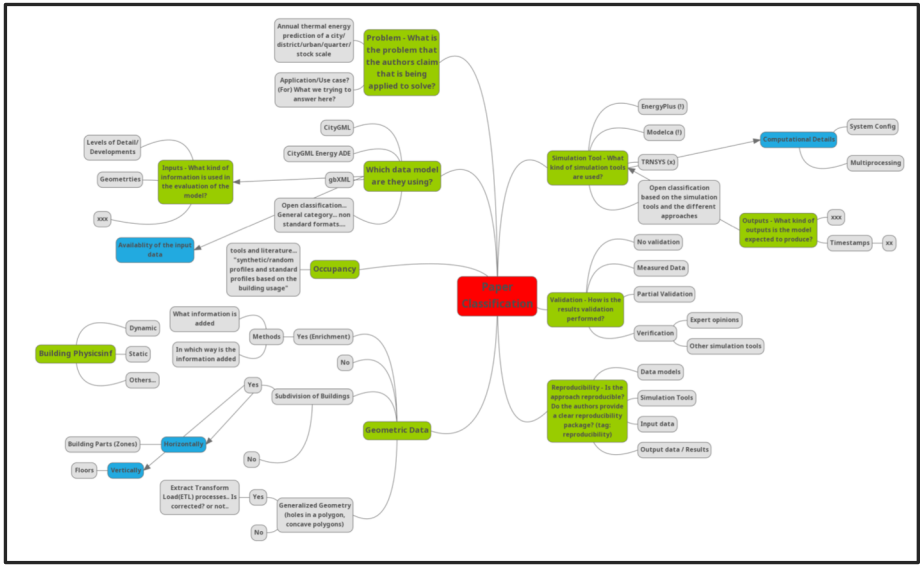



Paper Classification
Problem - What is the problem that the authors claim that is being applied to solve?
Annual thermal energy prediction of a city/ district/urban/quarter/ stock scale
Application/Use case? (For) What we trying to answer here?
Which data model are they using?
CityGML
CityGML Energy ADE
gbXML
Open classification... General category... non standard formats....
Inputs - What kind of information is used in the evaluation of the model?
Levels of Detail/ Developments
Geometrties
xxx
Availablity of the input data
Occupancy
tools and literature... "synthetic/random profiles and standard profiles based on the building usage"
Geometric Data
Yes (Enrichment)
Methods
What information is added
In which way is the information added
No
Subdivision of Buildings
Yes
No
Horizontally
Building Parts (Zones)
Vertically
Floors
Generalized Geometry (holes in a polygon, concave polygons)
Yes
No
Extract Transform Load(ETL) processes.. Is corrected? or not..
Building Physicsinf
Dynamic
Static
Others...
Simulation Tool - What kind of simulation tools are used?
EnergyPlus (!)
Modelca (!)
TRNSYS (x)
Computational Details
System Config
Multiprocessing
Open classification based on the simulation tools and the different approaches
Outputs - What kind of outputs is the model expected to produce?
xxx
Timestamps
xx
Validation - How is the results validation performed?
No validation
Measured Data
Partial Validation
Verification
Expert opinions
Other simulation tools
Reproducibility - Is the approach reproducible? Do the authors provide a clear reproducibility package? (tag: reproducibility)
Data models
Simulation Tools
Input data
Output data / Results

[...] last months

Journal Paper

Taxonomy



Ongoing/future work [...]

- Quantifying sources of uncertainties
- Define a metrics to evaluate uncertainty
- Use-cases (Aachen, Dublin, Graz)

Uncertainty Analysis

- Making data queryable
- Establishing relations to link data between various domains

Linked Data

- Development of VR use cases - user Interactions
- Interactive modelling and simulation within a VR environment
- 3dCityModel-2-VR methods

Virtual Reality & 3D City models