

Ein **multi-** und **intermodal**es Erreichbarkeitsmodell für **Arbeitsstandorte** (EMMA)

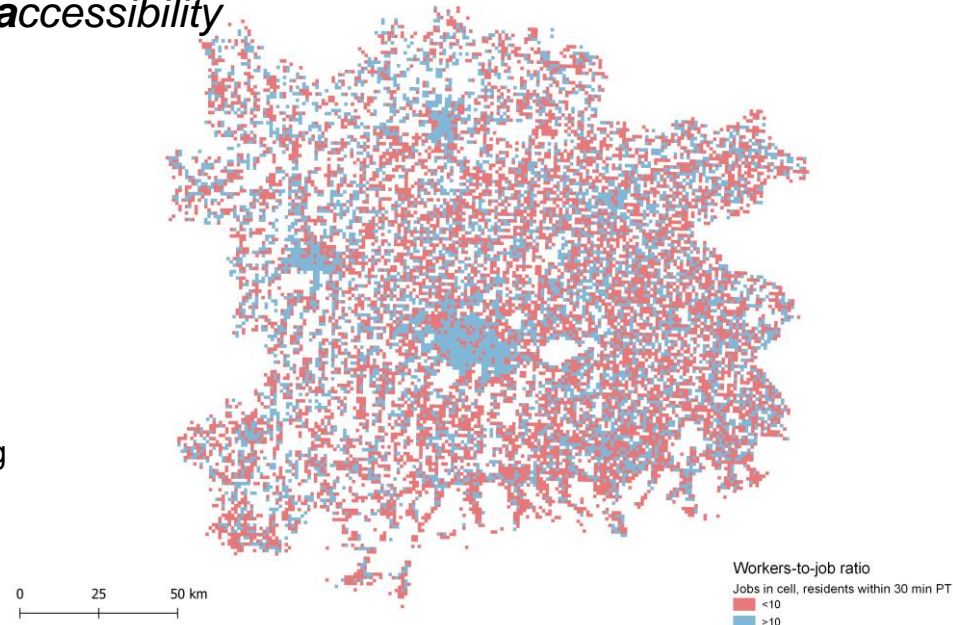
*Empowering **multi-** and **intermodal** workplace **accessibility***

Project Overview

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Who's this guy?

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PhD Researcher at Chair of Urban Structure & Transport Planning (since 2017)
Transportation Systems **Graduate** (2017)

Previous Projects: CIVITAS ECCENTRIC, Green City Plan Würzburg, Evaluation of
Munich's first Mobility Station at Münchner Freiheit

Now: 100% EMMA

Main methods & tools: Accessibility Modelling (QGIS, PostGIS, R, Open Trip Planner),
Data Analysis & Visualization (R), Survey Design & Analysis (R, LimeSurvey)

Goals

„Development, application, and assessment of a model to optimize the accessibility of workplaces in terms of multi- and intermodal mobility“

- (1) Identification and quantification of relevant impact factors on workers' mobility behaviour
- (2) Development of an accessibility model that enables sustainable development of workplace locations
- (3) Application of the model in the metropolitan region (regional scale) as well as on a smaller scale on selected cases studies in order to develop and assess scenarios for future development
- (4) Contribution to a better understanding of multimodal and intermodal accessibility analysis for workplace development

Hypotheses

- (1) The multimodal accessibility of workplace locations has a significant impact on the mobility behaviour of its employees
- (2) The accessibility model will identify workplace locations with accessibility surpluses or deficits in a regional scan
- (3) The accessibility model will enable the analysis and evaluation of concrete workplace locations as well as related scenarios.
- (4) The implementation of intermodal trip chains will make the results more realistic and more relevant for planning practice.

Methodology

Phase 1: Impact factors

- Identification and quantification of impacting factors on the mobility behavior of employees – based on existing data
 - WAM-Study: > 7000 employees in the regions
 - incl-. 1300 respondents, that have changed their work location (but not their residence)
 - Company-based surveys (SWM-Vertiefer, Weißenstephan)
 - Nationwide mobility study (Mobilität in Deutschland)

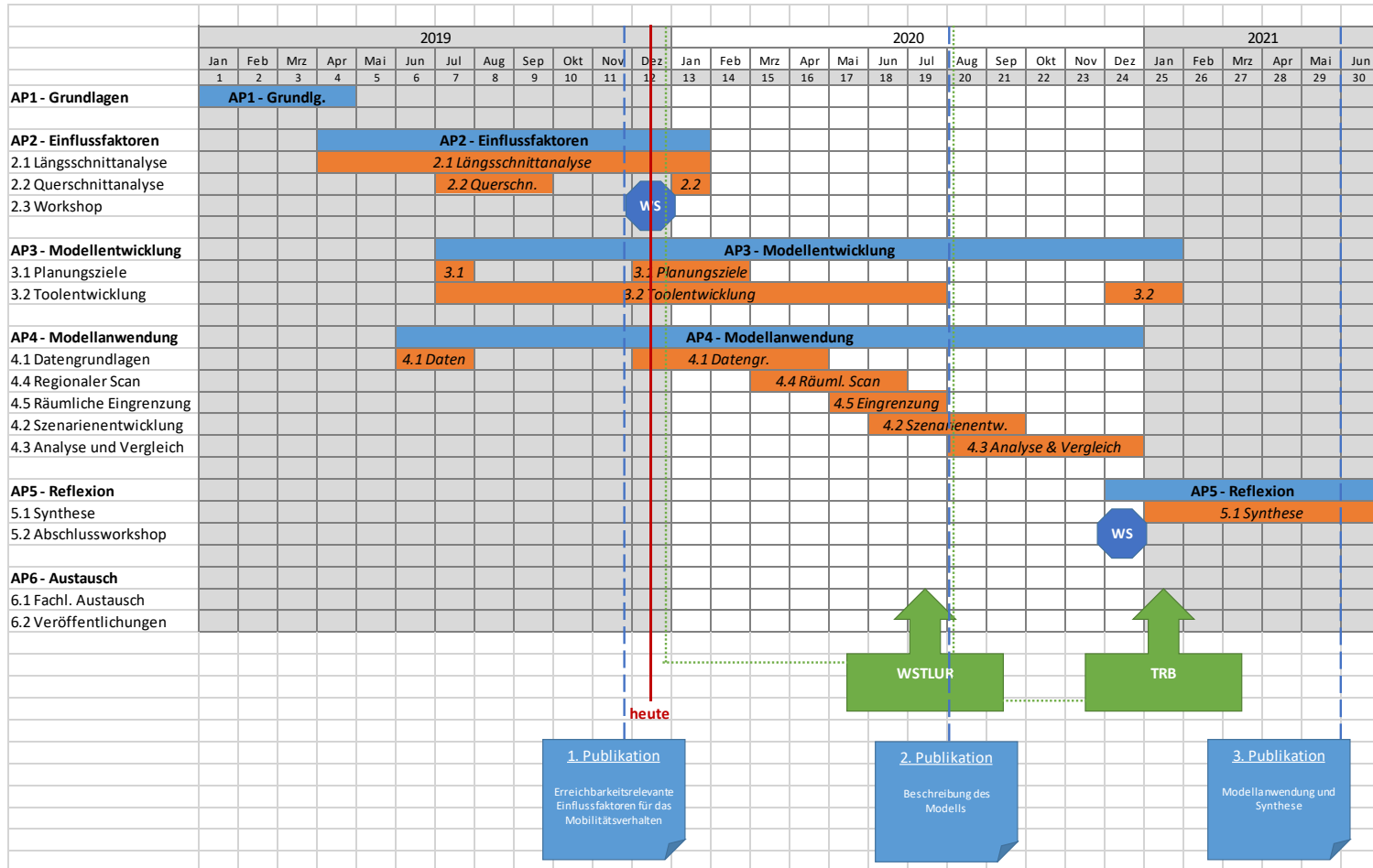
Methodology

Phase 2: Development and application of the model

- Defining planning goals through literature and experts/practitioners
- GIS-based modelling
- Intermodal routing by Open Trip Planner
- Input (Travel times + Structural data) from Landesverkehrsmodell Bayern
- Population and workplaces by Dun & Bradstreet, Census, own dissaggregation

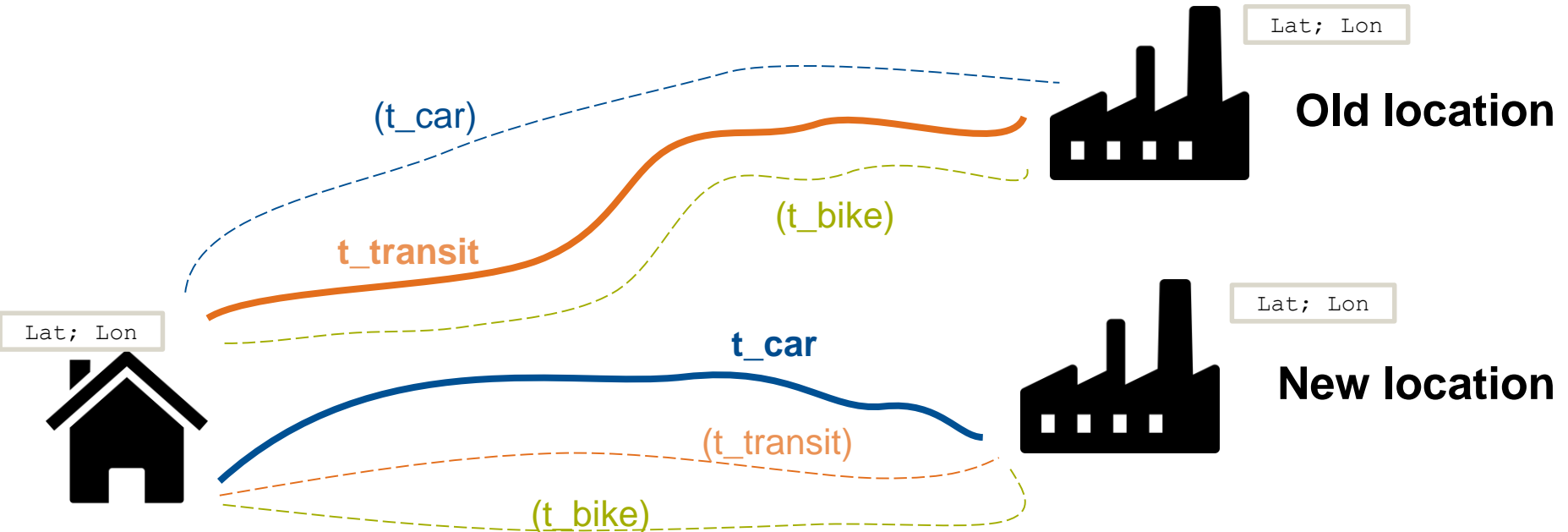
Phase 3: Synthesys

- Own elaborations
- Second workshops with international experts
- Discussion with practitioners



Longitudinal Analysis of Commuting Behaviour

What is the **isolated** impact of the workplace location on commuting behaviour?



Evaluation tool A

Accessible workers within [x min] by [mode / combination] (cumulative)

vs.

Jobs at the location

=

"Job-Labour-Access-Balance"

Clustering and Recommendations

Evaluation tool B

Accessible workers within [x min] by [mode / combination] (weighted)

vs.

Jobs at the location

=

"Job-Labour-Access-Balance"

Clustering and Recommendations

Evaluation tool C

Accessible workers within [x min] by [mode / combination] (weighted)
in Sector XY

vs.

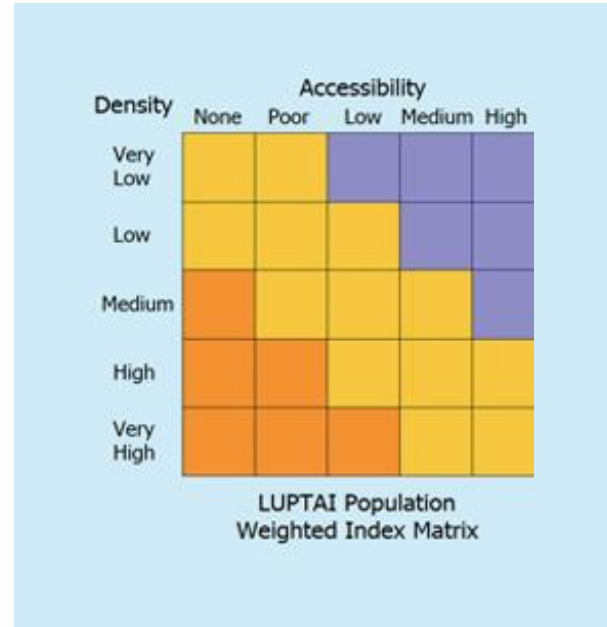
Jobs in Sector XY
at the location

=

"Sectoral Job-Labour-Access-Balance"

Clustering and Recommendations

Example: LUPTAI-Index



From intermodal mobility to accessibility...

- State of the art accessibility analysis is **mostly monomodal or multimodal**
 - multimodal:
 - Comparative: modes are compared
 - Combined: integrated indicator
- However, intermodal trips **are frequent** and have a high **practical relevance**
- New mobility services (bikesharing, on-demand shuttles, e-scooters, ...) have their greatest potential **in combination with transit**, not as an alternative
 - Both in terms of sustainability, performance, and pricing

What are the key intermodal combinations for worktrips?

