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An Agent-Based Demand-Modeling Framework for Large Scale Micro-Simulations

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STRC March 2006

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Institute for Transport Planning and Systems

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

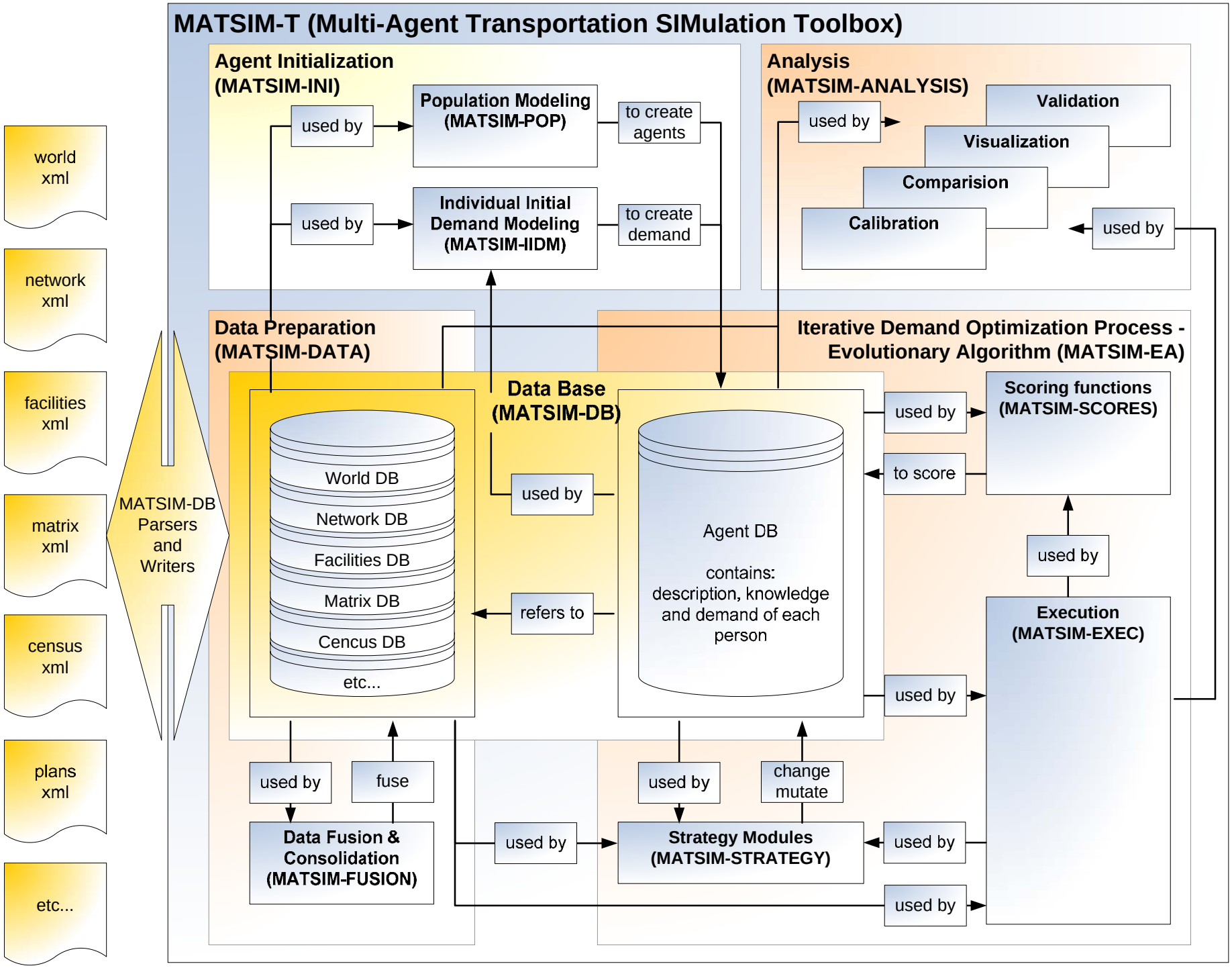
Overview

MATSIM-T

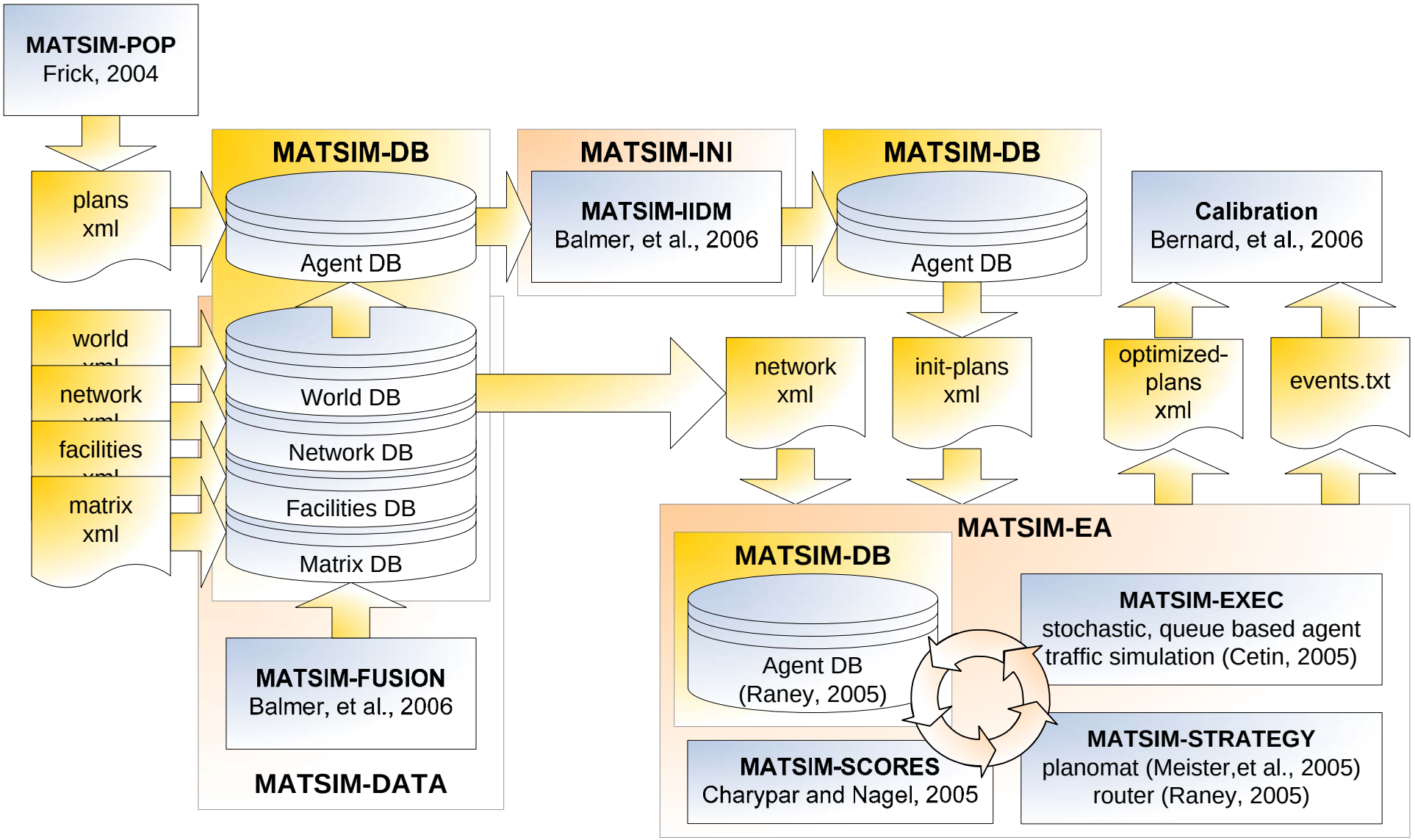
MATSIM-T Process Steps

IIDM Kanton Zurich

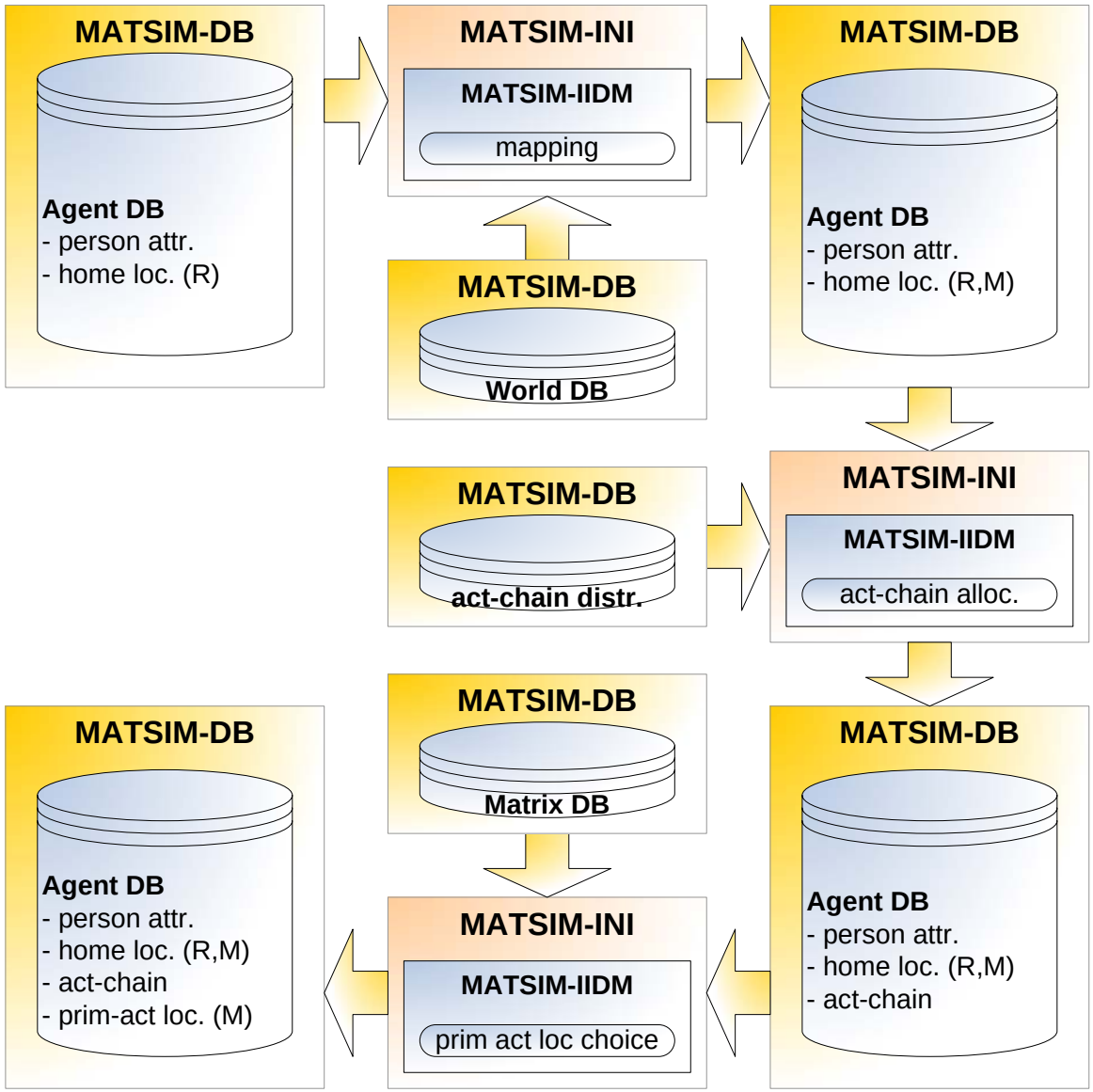
Outlook


MATSIM-T (Multi-Agent Transportation SIMulation Toolbox)
Agent Initialization (MATSIM-INI)
Population Modeling (MATSIM-POP)
used by
to create agents
Individual Initial Demand Modeling (MATSIM-IIDM)
used by
to create demand
Analysis (MATSIM-ANALYSIS)
used by
Validation
Visualization
Comparision
Calibration
used by
world xml
network xml
facilities xml
matrix xml
census xml
plans xml
etc...
MATSIM-DB Parsers and Writers
Data Preparation (MATSIM-DATA)
Iterative Demand Optimization Process - Evolutionary Algorithm (MATSIM-EA)
Data Base (MATSIM-DB)
World DB
Network DB
Facilities DB
Matrix DB
Cencus DB
etc...
used by
refers to
Agent DB
contains: description, knowledge and demand of each person
used by
to score
Scoring functions (MATSIM-SCORES)
used by
Execution (MATSIM-EXEC)
used by
used by
fuse
Data Fusion & Consolidation (MATSIM-FUSION)
used by
used by
change mutate
Strategy Modules (MATSIM-STRATEGY)
used by
used by

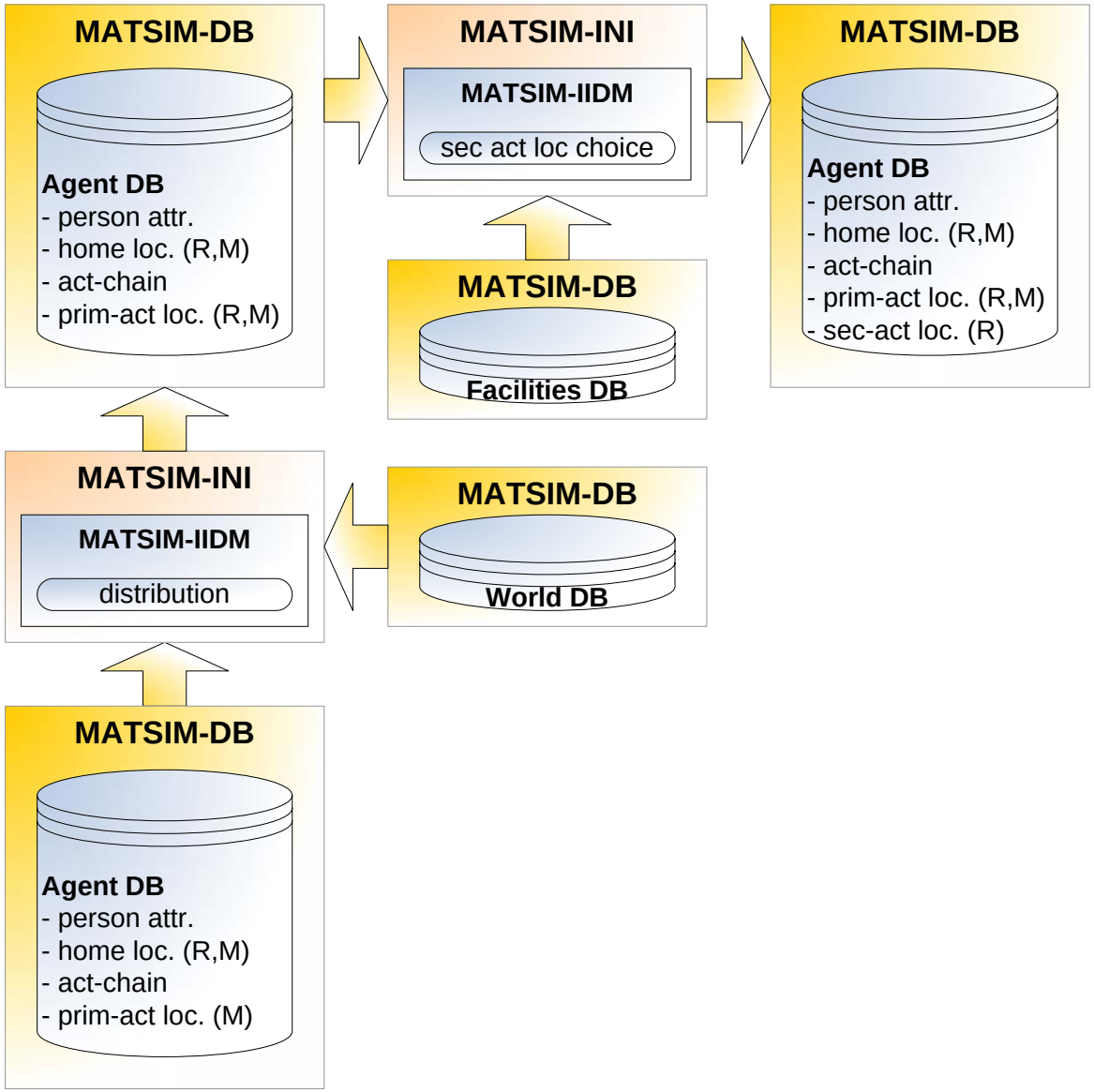
MATSIM-T Process Steps



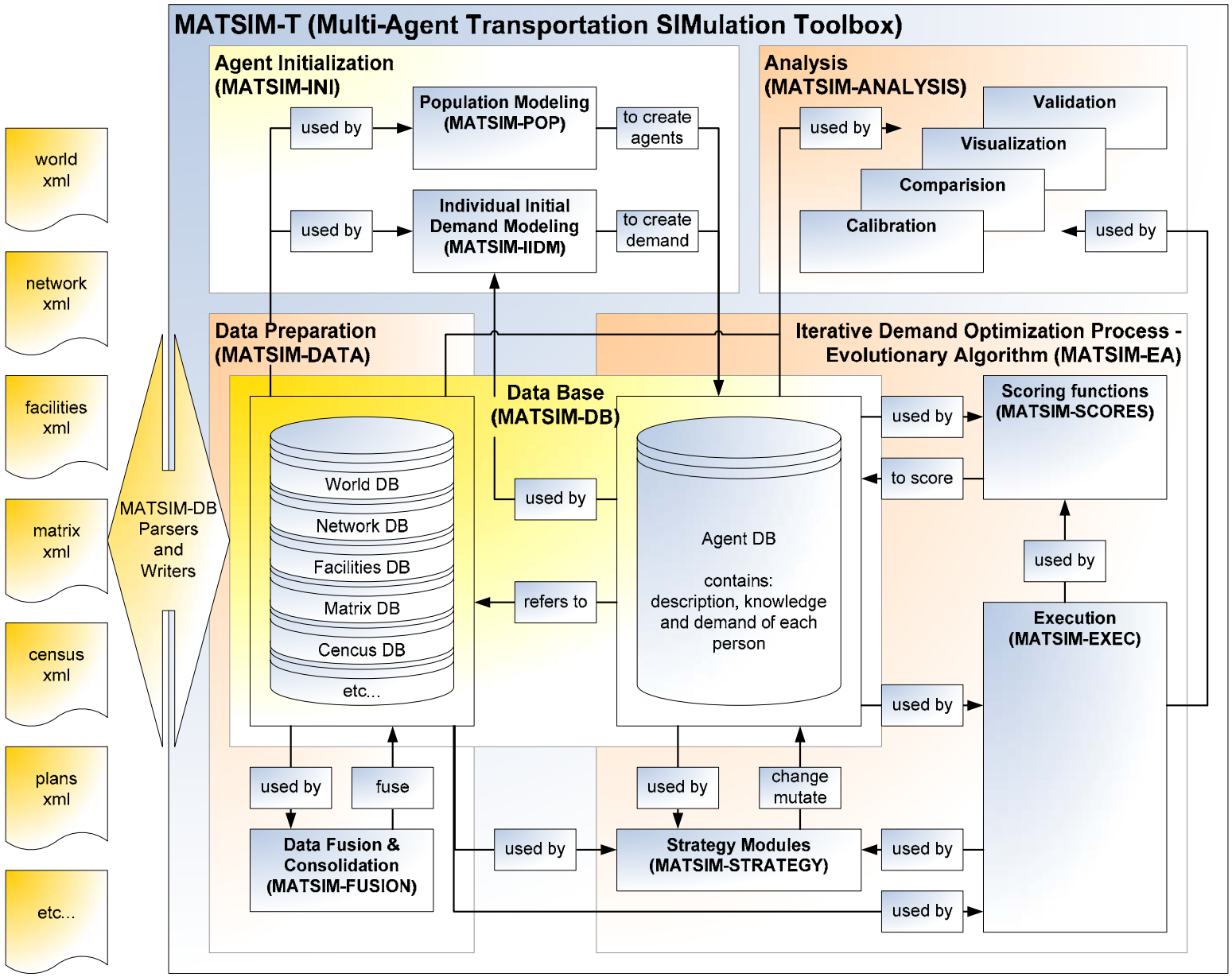
IIDM Kanton Zurich (1)



IIDM Kanton Zurich (2)



Outlook (now)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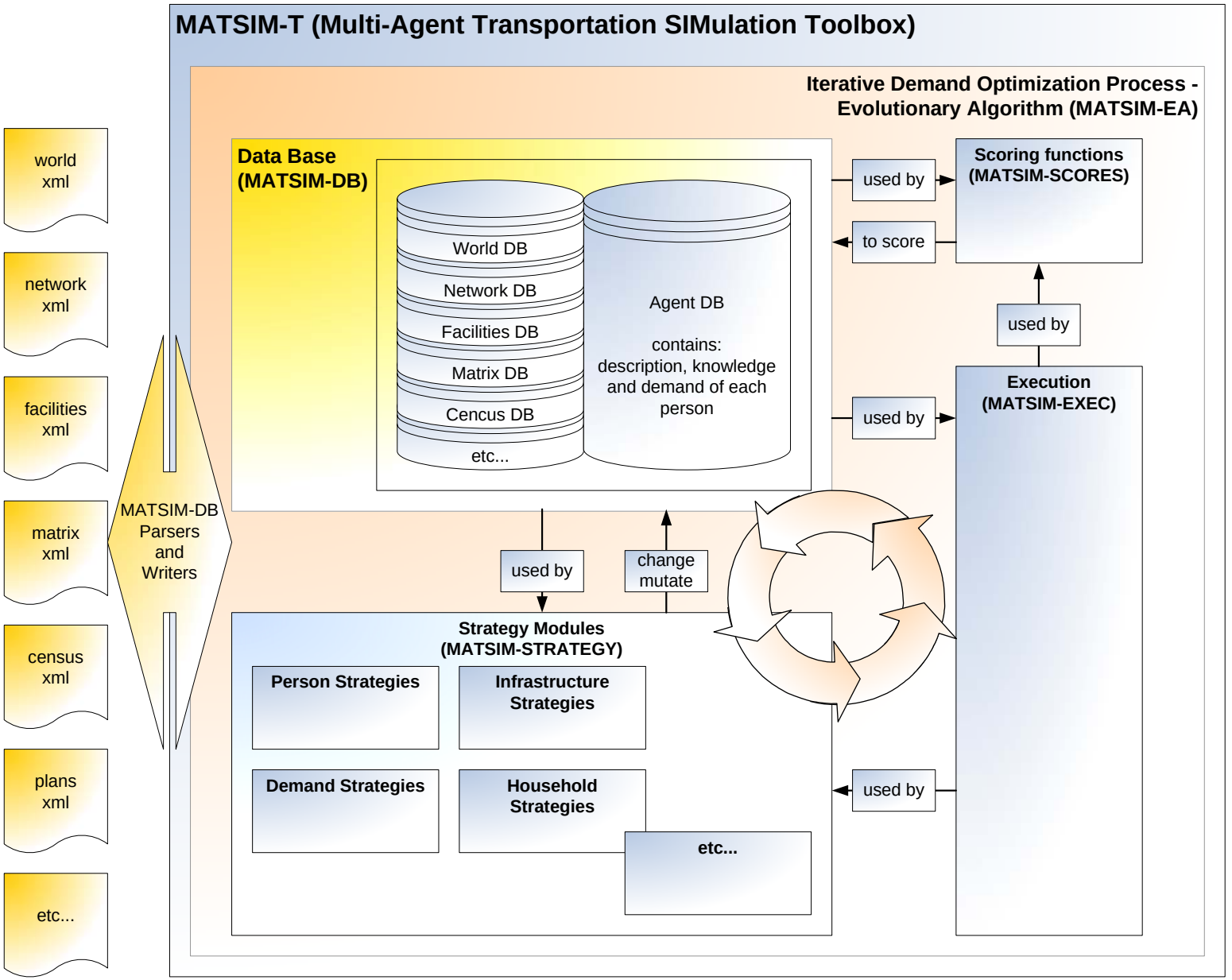
used by

Outlook (future)



Literature

Frick, M. A. (2004) Generating Synthetic Populations using IPF and Monte Carlo Techniques: Some New Results, Conference Paper, 4th Swiss Transport Research Conference, Monte Verita, Ascona, March 2004.

Raney, B. (2005) Learning framework for large-scale multi-agent simulations, PhD-thesis, ETH Zurich, Zurich.

Cetin, N. (2005) Large scale parallel graph-based simulations, PhD-thesis, ETH Zurich, Zurich.

Meister,K., M. Frick and K.W. Axhausen (2005) Generating daily activity schedules for households using Genetic Algorithms, Conference Paper, STRC, Monte Verità.

Charypar, D. and K. Nagel (2005) Generating complete all-day activity plans with genetic algorithms, Transportation, 32 (4) 369–397.

Balmer, M., K.W. Axhausen and K. Nagel (2005) An agent based demand modeling framework for large scale micro-simulations, paper submitted for the 85th annual meeting of the Transportation Research Board, TRB, Washington D.C., January 2006.

Bernard, M. (2006) Correlation of link travel speed, Conference Paper, 6th Swiss Transport Research Conference, Monte Verita, Ascona, March 2006.