CHAPTER 86

Seoul

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The MATSim model of SMA was developed in 2012, as a result of long-term research collaboration between the University of Seoul (Prof. Seungjae Lee) & ETH Zürich (Prof. Kay W. Axhausen). The model was updated yearly and demand was generated based on 2012 HHTSD. Demand statistics (input) are summarized as follows.

Study area was the SMA (Gyeonggi-do province, with emphasis on the Seoul Metro, comprised of 25 main administrative districts). A population synthesizer was developed to generate the MATSim input demand, based on HHTSD 2012. Total population of SMA was 21.5 million; therefore, a 10 % sample was generated and simulated (2.15 million agents). A detailed nodes and links network was generated, capturing all details (16 384 nodes and 32 768 links) for railways, highways, arterials, pedestrians, expressways and bus-only lanes. EMME/2 network was converted to MATSim format. The 2012 Korean Transport Database was utilized to generate transit schedules and vehicle definitions, according to bus types, railway and metro lines. Total number of routes was 1 317 (contained regional buses, inter-city buses, feeder line buses and metro lines, etc.). In collaboration with Senozon AG, a more realistic door-door demand was generated in Seoul City in July, 2014. Data source was the Korean GIS department.

In Seoul, MATSim has been widely used for various research purposes to aid policy evaluation Kim et al. (e.g., 2012); Lee and Ali (e.g., 2014).

A master's thesis on transit demand generation and calibration using smart card data in SMA is currently underway by this chapter's second author, sequenced as follows. A video is available from the authors on request:

- data mining (trimming off non-useful data),
- converting disaggregate transactions (O-D) to individual trips and trip segments based on user `ID`,
- activities inference and assignment in SPSS (Statistical Package for the Social Sciences) database,

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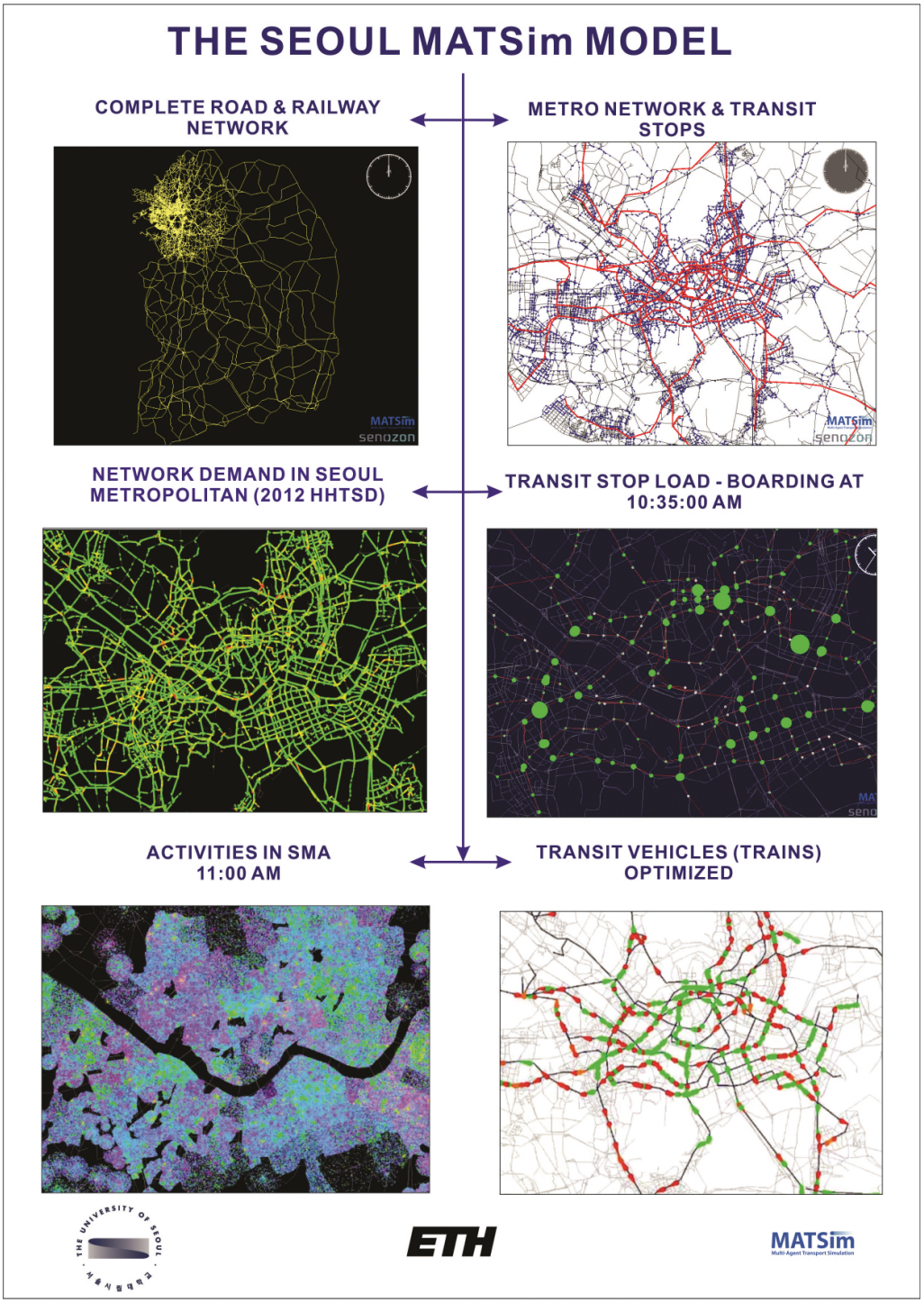

Figure 86.1: Seoul scenario.

- generating transit demand (MATSim input format),
- updated transit network & schedule for running the simulation, and
- model calibration (in process).

MATSim tutorials were also presented during the fall semester 2014 to help Department of Transportation Engineering undergrad and grad students gain a thorough working knowledge of MATSim.