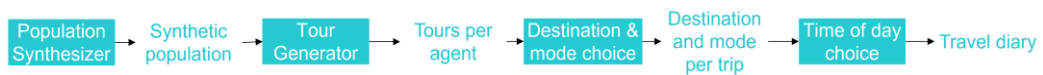


# VACANCY: Improving temporal accuracy in a microscopic travel demand model

## INTRODUCTION

Dat.mobility has recently added the tour based microscopic travel demand model Octavius to OmniTRANS transport planning software<sup>1</sup>. This model can be used to forecast the number and type of tours (activity chains) along with their destinations and modes for each individual person and household within the study area. These choices are made on an individual level, hence creating travel diaries for each individual in the study area. Currently, Octavius consists of four model stages:



In the first stage, a synthetic population, representing a current or future population is created. In the tour generator, the number and type of tours is determined, including information about the purpose of the tour. In the destination and mode choice, for each trip a destination and mode of travel is determined. Finally, for each of these trips the time of day is determined (morning rush hour, evening rush hour, rest of day).

## PROBLEM DESCRIPTION

To fully exploit the possibilities of a microscopic travel demand model, for example to incorporate (availability of) shared mobility, more and consistent temporal and spatial detail needs to be added. In the current implementation, a choice between three periods of the day, morning and evening rush hour and rest of the day, is made. However, for most new applications, more detail is necessary (e.g. hour of arrival / departure). Moreover, consistency of these temporal choices between different tours and activities is desired.

## RESULT / OBJECTIVE

The objective of the assignment is to develop a proof of concept of one or more choice models which describe the temporal travel behaviour of the population in a travel demand model.

## ASSIGNMENT

The assignment can be approached in different ways, but it would be expected that the following steps are part of the approach:

1. A literature research into different methods of incorporating a temporal component in a microscopic travel demand model.
2. Testing one or more of these methods in a 'proof of concept', taking into account data availability and fitting into the existing implementation of the Octavius model.
3. Evaluating the quality of the proposed method against the currently implemented time of day choice.
4. (If time allows) testing the developed method in a full-scale transport model, including a possible estimation of choice model parameters on a data set (if readily available).

## INFORMATION

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## FOOTNOTES

<sup>1</sup><https://www.slideshare.net/LuukBrederode/development-of-a-microscopic-tour-based-demand-model-without-statistical-noise2>