

<b>Scientific head:</b>	Prof. Dr. F. Corman
<b>Project title:</b>	How do different dispatching strategies affect passenger inconvenience on the SZU Network?
<b>Supervision:</b>	Jan Lordieck
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## Background

Disruption management in railways today often follows the approach of isolating delayed trains or parts of the infrastructure with multiple delayed trains, to prevent spreading of the delays. Other strategies are short-turning, cancellations to recover for the next course or simply running delayed and making up delay by consuming recovery times throughout the day.

## Problem description

The network of SZU is relatively small, congested and interconnected in its core part between Giesshübel and Zürich HB. With the envisaged 7.5 min headway of services on both lines of the network, the congestion and with that potential delays and their spread will increase further. The strategy of isolation is not applicable to the network and SZU does not know what the other approaches mean for passengers under its future timetable.



## Research question

This proposal intends to explore what different dispatching strategies mean for passenger experience. Therefore, an effective measure on the influence of the journey of the passengers is necessary. Until now the literature most often works with delay, however from transport planning we know that inconvenience by increased travel time, increased number of transfers and potentially other effects are more important for passenger experience. The question therefore is: What is a good measure for passenger inconvenience in case of schedule deviations? In the following, the passenger inconvenience should be estimated for different dispatching strategies on the SZU network. The question is: "What is a good dispatching strategy in terms of keeping passenger inconvenience low in the context of a densely utilised urban rail network?"

## Expected results

The student taking this challenge is expected to search the literature for metrics of passenger satisfaction or inconvenience and operationalise an applicable measure for the SZU network. This metric should be applied to operation under different schemes of dispatching strategies. The strategies should be predefined. The operation must therefore be simulated based on a pre-defined timetable for the 7.5min frequency.

<b>Credits:</b>	20-30 (Master Thesis)
<b>Requirements:</b>	<ul style="list-style-type: none"> <li>• Motivation to work with a real-world example</li> <li>• Some experience in simulation to extent an available simulation tool</li> <li>• Some experience with programming in Python</li> </ul>

