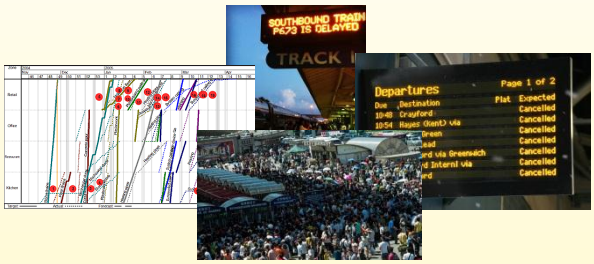
Development of robust railway timetables

Introduction

- Inceasing demand
- High capacity consumption / Lack of capacity
- Train delays and cancelations, uncertainty
- **Unsatisfied passengers**



Research objective

Improvement of railway customer satisfaction through increased capacity and decreased delays for passengers and freight.

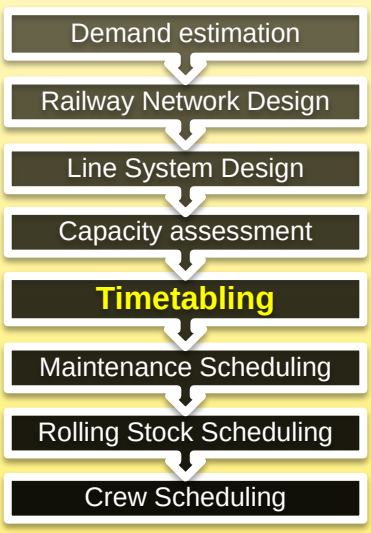


Figure 1. Railway planning process

Robust timetable

Definition

A railway timetable design is considered to be robust if it is able to avoid and settle delay propagation as much as possible.

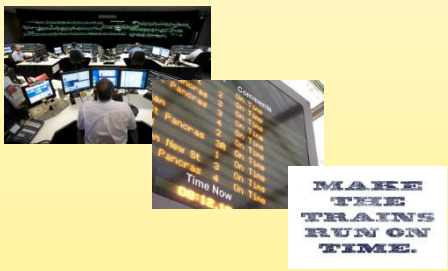
Delay resistant = Robust

In order to provide this, we need:

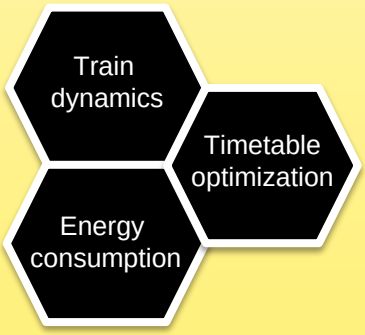
- Reliable running times
- Reliable dwell times
- Robust train dependencies at stations
- Feasibility
- Stable capacity utilization
- Energy-efficient train behaviour

Main question

How much and where the time supplement and buffer times have to be inserted, so as to guarantee a good trade-off between the efficiency and the robustness?



Framework



N. Bešinović, R.M.P. Goverde

Department of Transport & Planning

Delft University of Technology, Faculty of Civil Engineering and Geosciences,

n.besinovic@tudelft.nl