

Scheduling

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Abstract

In this article, we discuss the optimization of a train scheduling problem as well as its usage via an app. Numerical experiments are accompanied to show the quality of solutions.

Keywords

traffic networks, network optimization

1 Extended Abstract

1.1 problem and objectives

- assemble to order for capacity planning
- 3%, 5%, 3 min C&R-App

1.2 literature

- TAKT
- OpSysTra

1.3 innovation

- first infrastructure manager to use optimization models for freight train timetable planning
- customer value: shorter travel time, higher infrastructure capacity and faster response time
- first fully automated process in short-term capacity planning from ordering to the actual departure of the train

1.4 data

- digital infrastructure model
- timetable of passenger trains

1.5 practical relevance

- release of C&R-App in 2019
As in the subsection problem and objectives explained the C&R-App will give the customer a response with a selection of three possible timetable after three minutes. As for now the app is working as design. However, the app is not used by the customer yet since it is still in a evaluation phase where bugs can be find and will be fixed.
Nevertheless this phase will change next year as the release of the C&R-App is planned next years. This will have an extremely impact of the timetable procedure since then the customer will get his timetable within three minutes. Furthermore he has the opportunity to select within three different options.
- first step in automatization of timetable planning and traffic management
1 C&R-App for the Gelegenheitsverkehr 2 automisation of the Netzfahrplan 3 Bau-fahrplan automatization
- prepares DB Netz for the future with an increased efficiency (higher capacity and less effort for staff and customers)
1 higher capacity due to Systemtrassen 2 timetable can be produced within six hours
3 less effort for for staff and customers

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