A Decision Support System to Mitigate the Impact of Berth Errors

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Examples of Berth Errors at the Container Terminal Burchardkai

The term berth error can be used to define the difference between the berth schedule determined „a priori“ with the information known beforehand and the schedule that has to be planned dynamically during the planning horizon. No error means the schedule is being performed as planned, an error disturbs one or more processes at a container terminal which may or may not influence other logistic partners, and provokes the replanning of related operations. In the worst case one berth error may lead to subsequent berth errors at other container terminals which are included in the route of the late coming ship. The occurrence of such errors is often dependent on the punctuality of ships, but also on the availability of berths fit for necessary performances.

Terminal Processes

Decision Support System (DSS) with an integrated Information System

Berth Error Schedules

Impact on Processes

Concept of a framework:

BAPS Simulation Optimizer

Event Handler

Proposal

Resulting Schedule

Example of Chosen Solution based on KPI Extra Costs

- Late delivery of containers
- Late delivery of containers due to weather
- Late delivery of containers due to equipment
- Late delivery of containers due to personnel
- Late delivery of containers due to other reasons

Real-time data

- Change of arrival
- Available equipment
- ...

Data from digitizing containers

Terminal data

- Length of quay
- Number of quay cranes
- Weather level
- Destination of containers

Information on terminal movements

- DSS