Capacity Restricted Transport Corridors
Considering the Entrance Lanes of Shanghai's Port

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Inevitably, the trend of deploying mega-ships challenges the performance of the entrance lanes of Shanghai Port. Maintaining this performance is getting more challenging disregarding the types of vessels since March 2010 when container turnover made a leap to 650 mt and when the number of vessels within the port experienced a considerable increase.

There are two points of view when considering such a traffic congestion:

- From the perspective of economic decision making processes, knowledge transfer and the increment of entrance lane usage need improvement.
- From the perspective of technologies the possibilities of applying Internet of Things technology like Radio-Frequency Identification (RFID) or Automatic Identification Systems (AIS) need to be amplified.
- From the perspective of legal frameworks it is necessary to take into account the regulations of the China Maritime Safety Administration as well as intellectual property protection.

DEMAND ANALYSIS
Modules in the Dedicated MIS
According to the categories of functions, the dedicated management information system of Berth/Departure (B/D) Service so far contains the following 5 modules:

1. B/D Registration Module
2. B/D Cancellation Module
3. Planning for B/D Service
4. Simulation on Expected B/D
5. Maintenance

Constraints to Points 1-5 are:
- the draft, breadth and tide
- spontaneous restriction of the Maritime Safety Administration
- handling procedures efficiency

EXPECTED DECISION MAKING PROCESS

FURTHER RESEARCH
- Short term: time, date, the latitude and longitude degrees, and tides
- Long term: centralized versus decentralized decision-making process and auction on the entering sequence

TESTING & EVALUATION

INCORPORATING CATEGORIES OF CONSTRAINTS

Experiencing mainly the delay in your own travel time: the major incentive is to minimize your own travel time no matter which effect this has on the overall traffic system.

Allowing such a decentralized, selfish behaviour leads to unsatisfactory solutions as it increases the overall traffic time for all participants and is, therefore, not further pursued.

Poster created by Jule Berndt