Zürcher Hochschule
für Angewandte Wissenschaften

School of
Engineering

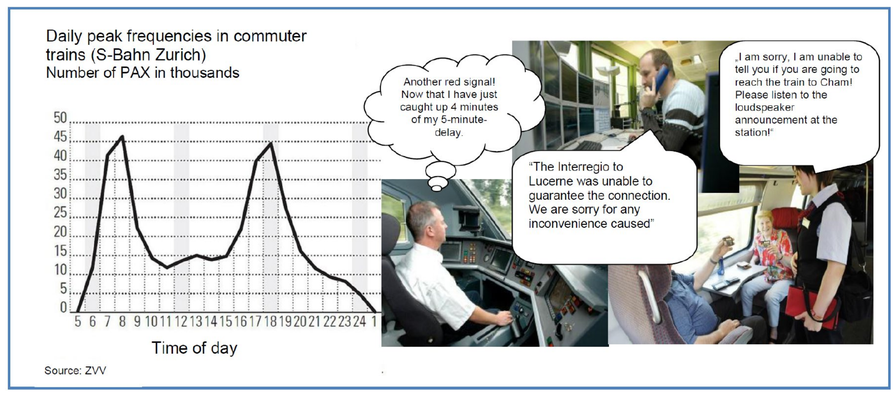
IDP Institut für Datenanalyse
und Prozessdesign

Railtransport Service Environment RTSE

Service Intention (SI) based train operations enabled by a multi component simulation framework (CTI project with IBM-Research, E+B and OpenTrack)

Service delivery problems

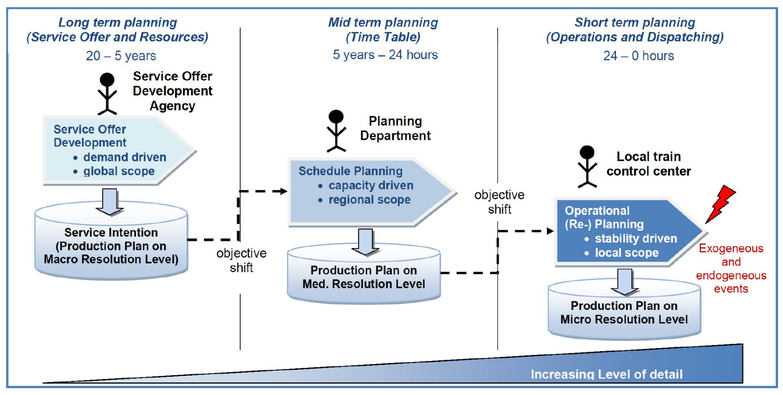
- Tight timetable due to increasing gap between peak hour and off peak hour demand
- Decreasing service reliability due to operational volatility and technical disturbances
- Limited usability of public transport due to communication problems
- Considerable overall delay times due to local dispatching decisions



Main problems: increasing peak demand (left), decreasing service reliability (right)

Service development problems

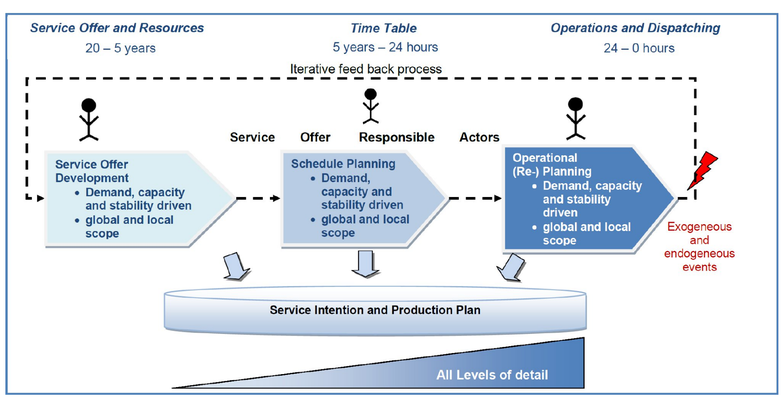
- Development process partitioned into several phases
- Phase specific tools and organisations
- Each phase transition is related to a certain shift of objectives
- During real-time dispatching it is difficult to keep service intention in mind



Service offer value chain: development process in 3 phases, distributed over many years.

Solution: integrated process, objective and scope

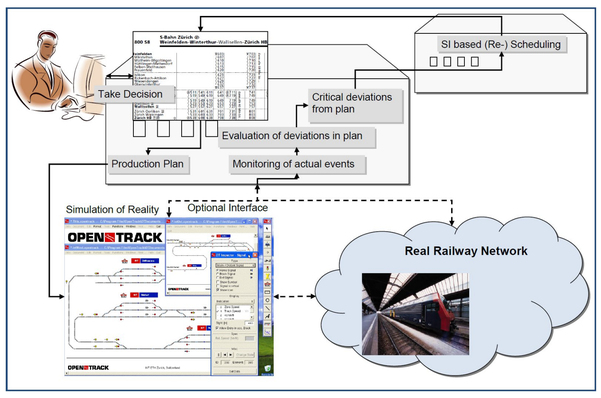
- Assessment of process state and re-calculation of SI-based production plan in real-time.
- Global data model (e.g.: train definition)
- Global rules (e.g.: resource conflict conditions)
- Scalable architecture to ensure network stability



SI focused development of production plan enables integration of processes

RTSE: the simulation framework

- Monitors events and technical conditions
- Triggers re-calculation of SI-based production plan in real-time based on critical deviations
- Provides communication plan based on rescheduled SI
- Enables performance measurement of network operations



Project Deliverable RTSE, the multi component simulation framework

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