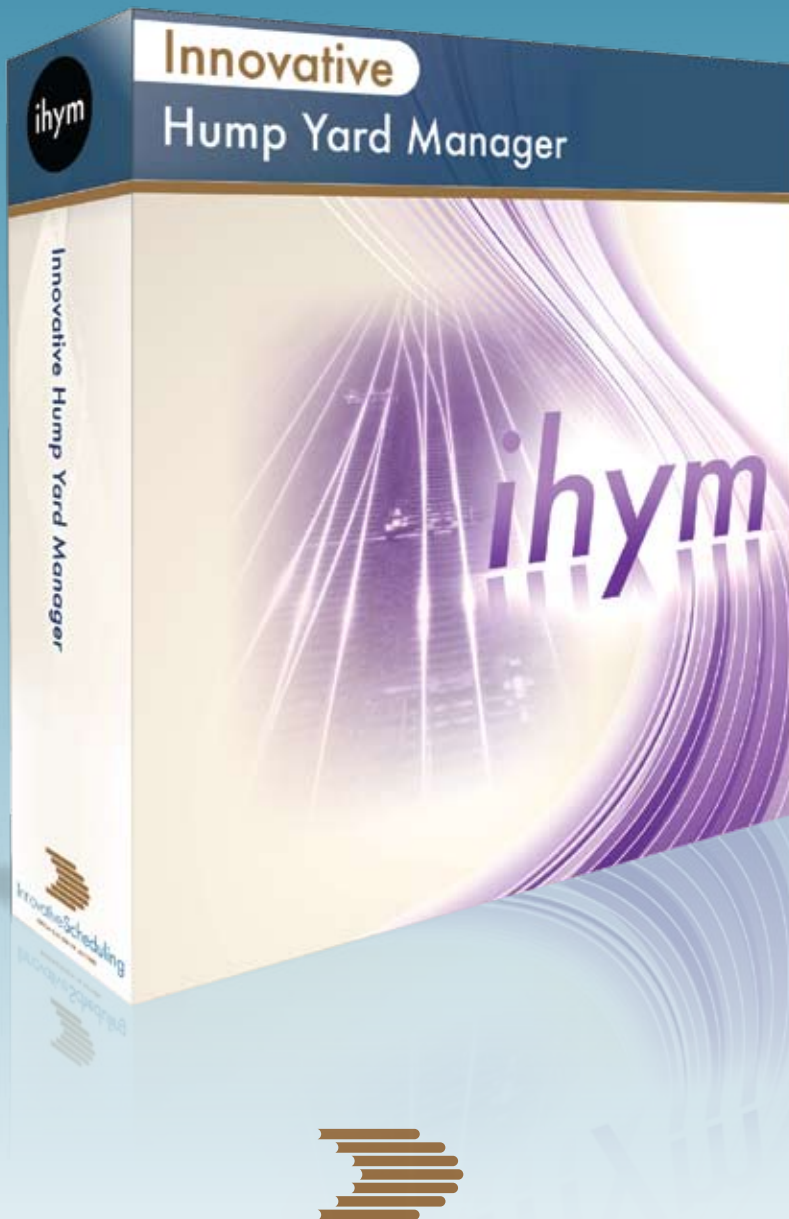


# IMPROVE HUMP YARD LAYOUT <sup>AND</sup> CAPACITY



Innovative Hump Yard Manager (IHYM) is a desktop-based decision support system that can simulate a hump yard for a given blocking plan and train schedule.

- ➔ Evaluate the blocking and car-handling capacity of a yard
- ➔ Evaluate the best way to increase yard capacity
- ➔ Assess impact of service design changes on yard operations
- ➔ Determine yard's operational efficiency
- ➔ Provide expected utilization and productivity statistics
- ➔ Size resources to maximize on-time train departures and minimize railcar dwell time

Innovative Scheduling

OPTIMIZATION IN ACTION

# INNOVATIVE HUMP YARD MANAGER



## INNOVATIVE HUMP YARD MANAGER FEATURES:

- Enables user to create new scenarios through a friendly interface
- Runs simulations within minutes
- Views movement of cars through yard
- Produces reports and charts for detailed analysis
- Easily compares results for multiple runs

Like airline hubs, hump yards are often referred to as the nerve center of the railroad system. Innovative Hump Yard Manager (IHYM) is a railcar-by-railcar discrete event simulation tool that considers train arrival and departure schedules, blocking plans, terminal track geometry – all constrained by available resources such as yard crew, locomotive, and railcar inspectors. Three decisions are key in managing hump yards: determining the humping sequence for inbound trains, determining block-to-track assignment in the class yard, and determining when to initiate assembly of outbound trains. IHYM uses rule-based or priority system-based schemes to make these decisions, closely emulating the typical decision logic of actual yard managers. Future versions of IHYM will offer alternatives to these rule-based decisions by including imbedded optimization modules within the simulation. IHYM presents simulation results through a visual animation of railcars, blocks, and trains on the computer screen. The model includes numerous reports related to train and yard performance and the productivity of tracks, crews, and inspectors.

**MAJOR CONTRIBUTIONS.** IHYM is a simple-to-use hump yard model designed for use by railroad managers and experts. The model does not require operations research analysts or IT experts to run and analyze scenarios. IHYM captures the critical relationships in yard processes without burdening the user with a myriad of details and a needlessly complex structure typical of other yard simulation tools. The IHYM bridges the historical gap between internal yard operations and network service design by providing network planners an objective assessment of a yard's capabilities and by providing yard managers a tool to better understand proposed changes to blocking plans and train schedules.

**CASE STUDIES.** Innovative Scheduling has performed several case studies of IHYM on data for a typical hump yard. IHYM can be applied to a specific study or can be customized as part of your on-going business processes.



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