

ICRON Inshore Barge Operations Planning and Scheduling

Excellence in Inshore Barge Operations requires good planning and tight co-ordination, control and sequencing over operations. The difference between good and excellent can make a difference of 20% in throughput over time.

ICRON's advanced planning and scheduling technology has a strong record of delivering excellence in barge operations, delivering significant financial performance improvement to its customers.

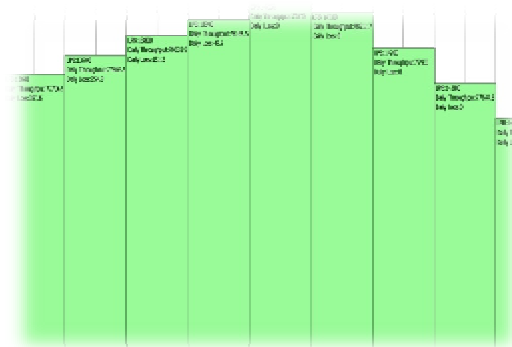


Barge operations excellence requires good planning

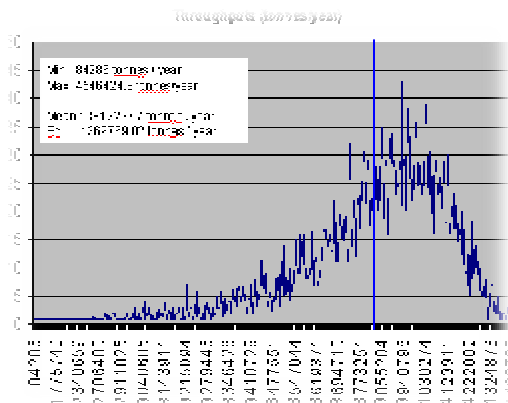
When details are unknown

When the configuration is not finalised, ICRON is used to determine:

- Optimum configuration to maximise throughput and minimise capital and operational costs.
- Identify and resolve bottlenecks
- Analyse throughput and costs based on different transshipment scenarios.
- Cost comparison over different transport mode scenarios, including mixed modes
- Simulation based on different demand forecasts, weather conditions etc.



ICRON analysis delivers optimum configurations



Monte Carlo Analysis is used to model stochastic operations

For stochastic problem modelling, ICRON uses Monte Carlo Analysis techniques. Possible system alternatives are modelled and most likely parameters (e.g. minimum and maximum harbour loading rates) are collected. Best matching probability distributions are identified (e.g. triangular, uniform, or normal distribution). Simulation models are run several thousand times to obtain mean values, variance and distribution pattern of outputs (e.g. operational costs, throughput, fuel consumption, manpower, vessel barge numbers, etc.).

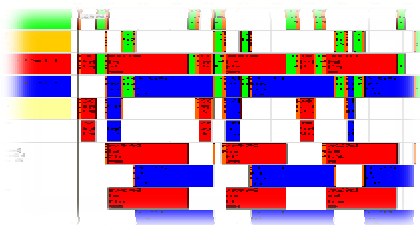
When details are known

When most details are already known, ICRON uses deterministic analysis. System alternative Scenarios are modelled and analysed (e.g. best worst and base case tug laden speeds, operations under different weather conditions etc.). Simulation models are run for different barge system configurations and cases, to obtain outputs (operational cost, throughput, fuel consumption, manpower, barge size etc.).

Cost and throughput effects for specific forecast demand and different weather conditions can be determined in scenario mode through possible configuration changes, such as:

- What if offshore floating transshipment facilities are installed or incremented?
- What-if vessels with own cranes are leased?
- Identify the best investment to resolve existing bottle necks, increase throughput, achieve minimum throughput rates
- Increase vessel size, loading rate, number of barges, barge sizes, transportation logistics (number of tugs, tug specifications, etc.), harbour logistics (decrease loading/unloading times, decrease berthing/un-berthing times, etc.)
- Cost comparison of transportation and investment alternatives (all barge transportation, barge/vessel mix, waterway/road mix, etc.)

Real-time Operations Scheduling and Control



ICRON interactive Gantt charts provide a clear view over all operations.

Arguably ICRON's greatest strengths lie in the scheduling and control of real-time operations. ICRON's proprietary graphical algorithm modelling technology and mature planning engine collaborate to deliver the world's most powerful and flexible systems of its kind. With detailed scheduling logic included, high levels of scheduling precision and automation become possible.

ICRON delivers full real-time control over port operations, tug movements and transshipment operations, whatever the conditions and, whatever happens. This keeps barge operators at the top of their game all the time, every time.