Implementation and Tuning of Navis Optimization Modules

With the increasing complexity and pressure in today's supply chain, it is critical for marine container terminals to optimize operations wherever possible. Shipping lines depend on a terminal's promised productivity to turn vessels as quickly as possible to maintain schedules and maximize slow steaming. Terminal operating groups depend on the most efficient operation possible to deliver committed ROI to investors. To meet the demands of customers and owners, terminals are implementing software optimization modules to help manage and improve their operations.

The implementation of optimization software is among the most difficult parts of a terminal operating system (TOS) implementation project. There are many application configuration trade-offs that need to be considered to ensure that operational performance expectations are met. Optimization modules must be implemented to exact requirements. In addition, a baseline of the relevant KPIs needs to be established and compared to performance estimates based on test scripts or emulation prior to go-live. Once an optimization module is in production, a process needs to be established to react to changes that may occur at the terminal. There may be new equipment, additional process automation, a new yard layout, or a new service to integrate into the operation. During these times, terminal operators may want to revisit the configurations of the optimization modules and adjust to the changes, to best adapt and leverage the change for operational efficiency.

Navis Professional Services has built and is continuing to invest in a prescriptive project approach to help our customers implement and maintain Navis optimization modules. Our team of experts has the experience and expertise necessary to effectively implement Navis optimization modules. Navis Optimization Services can also help to establish a process for regular reviews of the optimization solution and help to implement tune-ups of current parameters. In addition, since the optimization modules will impact the day-to-day operations of your planning team, Navis can help to recommend and implement appropriate training and change management procedures.

About Navis Optimization Modules

The Navis Optimization Modules improve operational productivity and efficiency:

- **ASC Manager:** centralized control, monitoring, and optimization of automated stacking cranes.

- **Expert Decking:** yard allocation module facilitates real-time, accurate and optimized stowage of containers in the yard and allows users to spend less time observing yard allocations and more time managing the yard.

- **Autostow:** automatically generates stow plans for the entire ship or by specific bay based on rules set by the ship planner and in compliance with vessel planning stowage strategy.

- **Prime Route:** optimizes real-time routing, dispatching and monitoring of straddle carriers, terminal tractors and other internal transportation vehicles within the container terminal.

Benefits of Navis Optimization Services

1. Navis is the developer and provider of the global technology standard terminal operating system and has unparalleled knowledge of these systems.

2. Navis has the experience with the performance characteristics and best practices at more than 250 terminals globally. In 2013, Navis Professional Services helped implement 23 TOS implementations globally.

3. As the product vendor, we engage Navis Product Engineering when needed, and we have access to and leverage tooling used by our engineering and QA team.

4. Navis has built a dedicated global Optimization Services Practice, which is building and applying the Navis TOS implementation best-practices for optimization projects.

Navis Optimization Services include:

1. **Full Implementation** includes the implementation of any of the Navis optimization modules including Expert Decking, Prime Route and Autostow. Navis Services Experts will conduct end-to-end implementation, including initial KPI base lining, requirements analysis, parameter tuning and configuration, testing, end-user enablement, and rollout support.

2. **Optimization Module Tune-up** is valuable if you have undergone a recent change or are expecting a change to your TOS. A tune-up is a short 1-2 week engagement where Navis will evaluate current configurations against current operations or an upcoming change. We will then update the configuration and do verification tests to drive towards improved performance. In parallel, we mentor your staff to be better prepared for future changes.

3. **Custom Optimization Module Implementation**. Navis experts will implement, integrate, test and roll-out a custom optimization. This typically involves a 3rd party or custom solution and careful integration to address data synchronization, timeouts and downtime challenges.

Prime Route Optimization Case Study: DP World Jebel Ali T1 & T2

CHALLENGE	Improving operating efficiencies while maintaining overall terminal productivity at one of the largest terminals in the world.
SOLUTIONS	Navis PrimeRoute to improve terminal equipment utilization efficiency. Strong customer project team and executive sponsorship-utilizing the Navis Professional Services implementation team.
RESULTS	Significant cost reduction & improvement in operational metrics. 12% gain in gross moves per hour (GMPH). 21% gain in terminal tractor moves per hour (TT MPH). 20% reduction in unladen travel time.

About Navis Professional Services

For more than 25 years, Navis has provided operational technologies that unlock greater performance and efficiency for our customers, the world's leading terminal operators. Backed by the experience of working with more than 250 customer sites, the Navis Professional Services Team is uniquely qualified to help address terminal operational challenges with comprehensive implementation and optimization services. The Navis Professional Services team is comprised of former terminal operators, MBAs, operations research PhD's, and Navis N4 experts with decades of experience helping terminals to implement their TOS and optimize operations. As a result, Navis Professional Services helps terminals to maximize investments in advanced technology solutions, new business processes and operational optimization initiatives by aligning them with our customers' highest-level strategic goals.
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