

## Container & Intermodal Terminals

### Digital Automation and Systems Integration

The automation of a container terminal can offer a variety of benefits, including: improved safety, reduction of costs, and mitigation of re-handling. Additionally, automation offers container terminals with previously unattainable levels of **operational visibility and insight.**

Automation, however, when implemented poorly can introduce new challenges and magnify issues which would have previously been negligible in conventional operations.

In recent years, substantial technological advances have been made by equipment and systems vendors catering to the container handling sector. However, vendors are typically focused on their own technology silos, and an over-arching blueprint is required to ensure that the various technologies work in a coordinated fashion to support the operation's processes and activities. Otherwise, the technology can compete with, rather than support, the business' objectives.

Hatch has a proven track record of successfully helping our clients in process industries with operational systems projects at various stages in the asset lifecycle (pre-construction, greenfield, brownfield system upgrades). Our experience includes:

- Developing systems scope as part of a facility's master plan
- Digital transformation services, including strategy, roadmapping, business case development, and full value chain implementation and integration
- Simulations to select the most appropriate technologies and operational scenarios

- Business requirements mapping, specifications, vendor selection
- Planning for implementation and rollout, including change management and operational readiness
- Systems programming and implementation
- Decision support tools, for real-time operational assistance, and optimization solutions for long-term planning – incorporating deep analytics, AI/ML, and predictive capabilities
- Testing and QA – definition of methodology, environment (emulation, simulation and testing frameworks) as well as stages and levels of testing appropriate for the project; provision of resources for testing
- Implementation and commissioning
- Operational support

Hatch has over 30 years of experience implementing process control and automation solutions for our clients across diverse process industries such as mining and metals, oil and gas, bulk materials handling, energy, water and wastewater, and more recently, container terminals.

Our consultants, engineers and specialists leverage our experience and understanding of best practices from across different industries to ensure quick and streamlined implementations and successful project outcomes.



Hatch is currently working with the Port Authority of New York and New Jersey to develop a long range 30-year master plan for their maritime facilities.

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Hatch is a company which believes in collaboration, recognizing that our most successful projects involve diverse team members, skills and contributions. As such, we often work closely with:

- The client's internal team, who understands their operation the best and knows what constitutes success.
- Technology vendors. We believe in clearly articulating the requirements and expectations to the vendor so that there are no surprises. As a technology agnostic company, Hatch has relationships with many equipment and automation and control system vendors in the different sectors we work in.
- Domain and subject matter experts. These can be either Hatch internal experts (e.g. Rail, Ports & Marine), or specialist consultants.

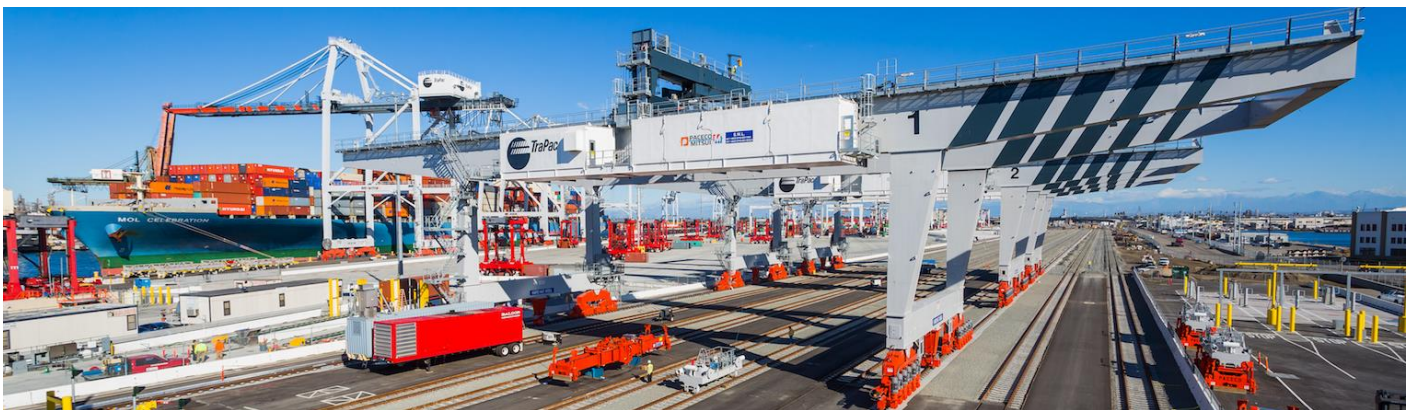
Since 2016, Hatch has been involved at the TraPac terminal at the Port of Los Angeles. TraPac is one of the first fully automated terminals in North America with automated horizontal transport (straddle carriers), automated stacking, and automated on-dock rail. As Owner's Engineer, the Hatch team, based out of our Calgary, Mississauga (Toronto), and LA offices, has successfully introduced concepts and approaches from other industries to help expedite the achievement of several of the client's goals. Examples include:

- Operator effectiveness and exception handling
- Automation systems integration
- Testing strategy
- Site-wide process historian for operational improvement. Within about a month of project inception, several improvement projects were defined based on the analysis, resulting in tangible benefits. One improvement includes a **10% reduction in cycle time in the widespan rail-mounted gantry cranes used in the automated on-dock rail.**

Hatch also provided the project management services for the implementation and integration of the rail planning system with the Terminal Operating Systems (TOS).

Hatch is currently continuing to work closely with the client's internal team and various automation vendors for continued operational improvement. The key vendors include:

- Kalmar / Cargotec
- INFORM
- Camco
- Tideworks
- MES (PACECO, Mitsui)
- TMEIC
- OSISoft



Hatch's site-wide historian Implementation quickly resulted in a 10% reduction in cycle time for the rail-mounted gantry cranes used in TraPac's automated on-dock Rail