

IX[®] Case Study
Chemical Plant Transformation



IMPLEMENTATION
ENGINEERS[®]
BEYOND CONSULTING

18%increase in
throughput**\$6.8M**annual P&L
benefit

We partnered with a global leader in chemical specialties to implement its operational excellence program, Global Standards, at a prominent flagship facility. The primary objective of this implementation was to enhance capacity, minimize waste, and decrease demurrage expenses while harmonizing operational excellence tools and processes in the North American region.

Implementation Highlights



Production Operations

- Conducted DMAIC project to reduce excess water production
- Implemented production process improvements to alleviate constraints and reduce re-work
- Implemented quality improvement projects



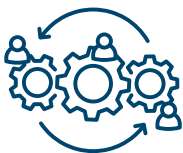
End-to-End Supply Chain

- Improved demurrage management and cycle time reduction
- Implemented an inventory optimization model and process
- Implemented enhanced contract management processes within the context of the client's broader network scale



Maintenance & Reliability

- Implemented improved Work Management process
- Installed enhanced Asset Reliability processes
- Improved Material Management practices
- Implemented Maintenance Management Operating System



Management Operating System

- Installed tiered meeting structure including weekly production reviews and shift handovers
- Developed Leadership Standard Work including coaching, workshops and compliance tracking for all leadership level



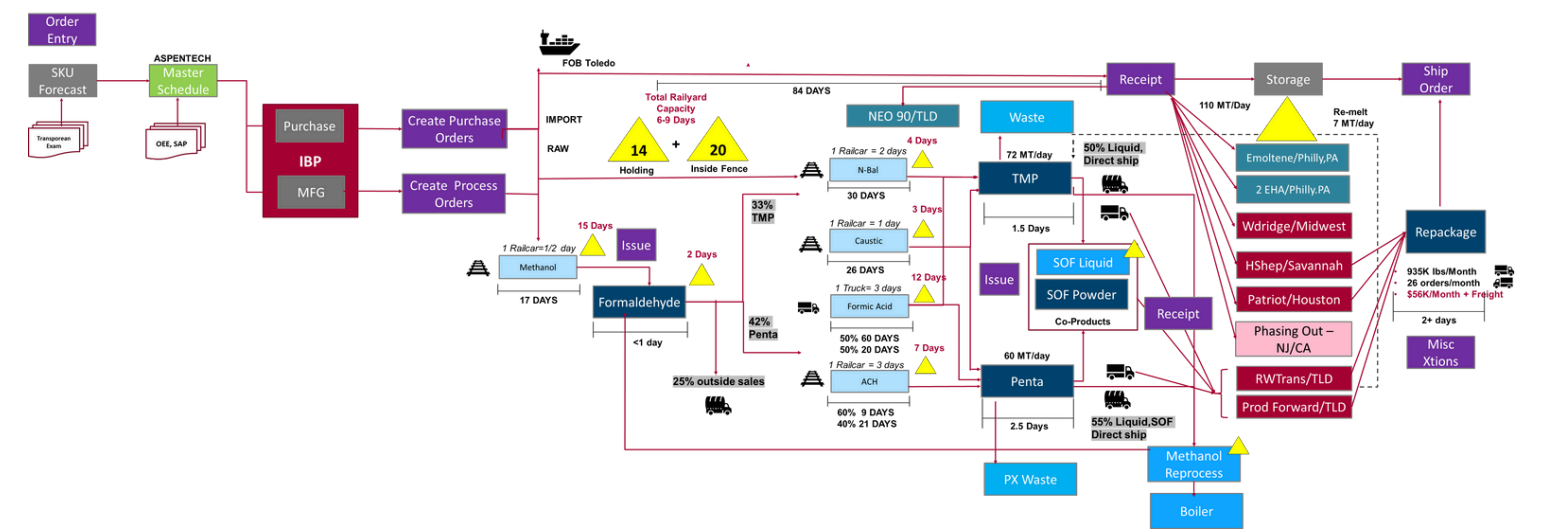
Training & Coaching

- Trained and coached 26 operational leaders across the facility on formal problem-solving methods and coached on the new tools and processes

End-to-End Supply Chain

During the Implementation Design phase, our team mapped out our client's End-to-End Supply Chain, uncovering critical cross-functional inter-dependencies and gaps impacting operations performance. We identified that the surge in demurrage costs was directly linked to prolonged turnaround times. Furthermore, the facility lacked technical procurement management for an MRO spend exceeding \$2M, posing significant challenges. The absence of contracts for carriers and warehouses complicated reconciliation processes and heightened risks in the competitive supply chain landscape. The absence of quoting or contracts for MRO items presented a substantial opportunity for cost savings.

The analysis also revealed concerning inventory and warehouse management trends, including significant levels of recent inventory adjustments and obsolescence, and nearly \$2M tied up in slow-moving inventory and lot issues. Backflushing and yield discrepancies contributed to manual reconciliation efforts. A drop in unrestricted inventory coupled with low import inventory and plant performance issues created a challenging scenario.



Implementation Activities

- **Enhanced Demurrage Management:** Enhanced Short Interval Control visibility to identify and address demurrage causes effectively. Streamlined raw material flow management in railcars and transport containers to minimize demurrage costs. Developed documented response plans for supply disruptions, unplanned downtime, and other risks.
- **Continuous Inventory Optimization:** Established and implemented a process for ongoing optimization of Days on Hand inventory for Finished Goods Stored in the United States. Utilized client led SAP Integration and Master data workstreams to ensure data accuracy and timely inventory transactions for success.
- **Streamlined Network Optimization:** Developed and implemented a revamped Transport / Warehouse network to simplify management and reduce costs for client's products in the United States. Improved freight and warehousing costs, enhanced DVC visibility and streamlined management processes for imported and domestic products.
- **Enhanced MRO Spend Controls:** Collaborated with the Asset Integrity Management team to identify relevant materials and services spend. Implemented a structured process to enhance controls in need definition, quotation, procurement, receipt, matching, and payment processes.

Production Operations

Implementation Engineers implemented operational improvements across the clients’ facility, which included:

- 1

Conducted a DMAIC project to define and reduce the addition of excess water into the Penta plant, resulting in increased product yield, reduced water consumption, minimized product loss to the sewer, and lowered wastewater costs.
- 2

Stabilized the production of the Penta plant by applying the global OPEX process "Stabilize and Improve Flow" along with other OPEX and Lean techniques. Monitored capacity improvement through the implementation of a production dashboard and production loss accounting.
- 3

Improved the quality of the Penta Formate to a level suitable for sale in markets outside the United States, thereby reducing the need and costs associated with incinerating the Formate product.

Management Operating System

Working closely with our client’s OPEX team, Implementation Engineers developed and deployed a comprehensive site Management Operating System aligned with our client’s global standards.

Management Operating System Elements Implemented

- KPI Tree for all areas of the site

• Meeting Flow that supports the planning, execution, review, and improvement of the site’s performance levels

• Leadership Standard work
- Production Visual Management systems

• Competence development (skills) process

• Supervisor / Operator Rounds

• Behavior model

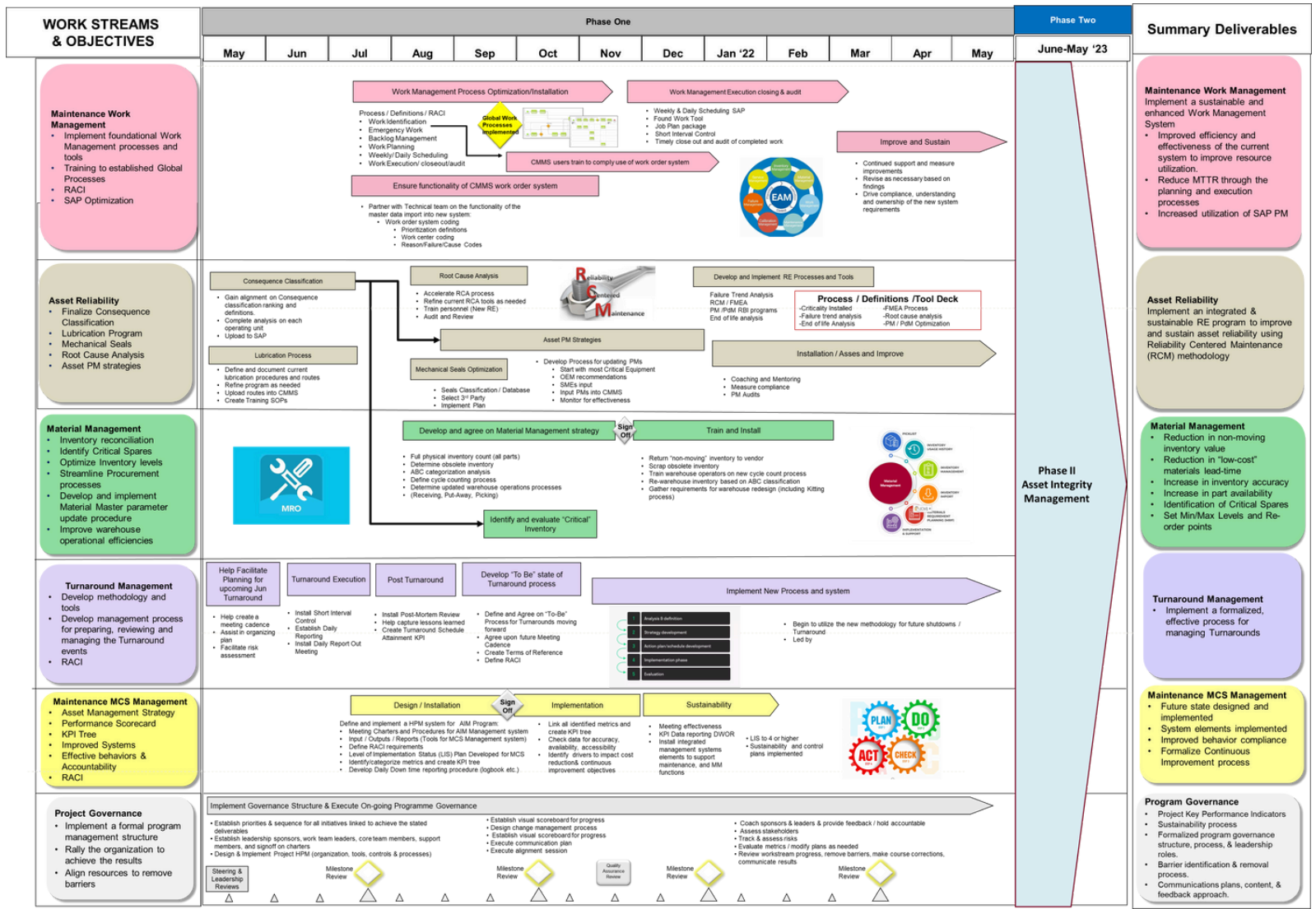
Additionally, we identified and implemented End-to-End Supply Chain KPIs and metrics for all areas of the workstream integrating them into the Management Operating System. We also established a structured Asset Integrity Management Operating System, defining KPIs for each function of the Asset Integrity Management workstream and integrating them into the Management Operating System.

Furthermore, we focused on Organizational Development, creating a well-defined organizational structure aligned with a Lean framework. This structure ensured clear responsibilities, accountabilities, and alignment with the organizational strategy, facilitating effective decision-making and allocation of actions within the organization.

Maintenance & Reliability

Implementation Engineers implemented a comprehensive maintenance and reliability program for a client, encompassing a range of strategic initiatives to enhance operational efficiency and asset performance. The program included the implementation of work management processes, a Consequence Classification Project to identify critical equipment, development of a lubrication plan, establishment of a Root Cause Analysis (RCA) program, creation of a proactive Preventive Maintenance (PM) strategy, evaluation of asset life cycles, standardization of processes and tools for Reliability Engineering, and the documentation of a future state turnaround management process and system.

Implementation Roadmap



Sustainable Results

Implementation Engineers implemented a comprehensive improvement strategy for our chemical client, transforming its operations and harmonizing standards with its global best practices. Training and coaching was conducted across the facility to drive personnel capability development and overall program sustainability.

Next Steps

- > Schedule a meeting with our team to discuss how Implementation Execution (IX®) can help your organization achieve its goals. Submit an IX® request on our website at www.implementation.com
- > Visit www.implementation.com to read more about IX® and how we have helped our clients create sustainable results
- > Follow us on LinkedIn to stay up to date with the latest industry insights and updates. Join our network to access exclusive content and stay connected with our team of experts

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