



RESULTS AT A GLANCE

30 to 60

Minute reduction in “first starts” time

25%

Reduction of maintenance wrench times

\$10M

Value for the business from improving throughput and uptime

\$50M

Collective impact of Rapid Improvement projects during first 18 months

\$150M

Combined bottom-line savings after continued application

Upstream Value Generation – Applying Kaizen and Lean Methodology to Drive Results and Engage the Workforce



Continuous Improvement, both a strategy and a process, is not only about improving operations by reducing waste but about empowering the people. We believe that applying continuous improvement methods will not only help energy companies temper the effects of market downturns but also position them to perform even better when more favorable market conditions return by improving end to end production processes.

Our clients achieve successful organizational transformations through long-term people-based operational excellence systems. We understand that success is about getting tangible financial results by developing individuals capable of sustaining a Continuous Improvement culture. Argo’s extensive experience and approach supports leading oil producers and refiners in reducing operating and capital costs, improving productivity and reducing their environmental footprint.

THE SITUATION

Continuous Improvement has long been a primary area of focus for the largest Upstream and Downstream operators, which have spent years building effective internal teams to maximize opportunities for cost savings and margin enhancement. But even these organizations have an opportunity to improve their CI capabilities and benefit from re-energizing their operational excellence programs.

A \$30+ billion upstream company reached out to Argo to do just that and generate impact in all areas of its production process including mining, upgrading, refining operations and maintenance. The challenge and goal included the upgrading of their internal

operational excellence program by coaching and leveling-up the skills of 25 Continuous Improvement practitioners assigned to multiple areas of the business. These internal experts had already achieved a mix of mid to high level of mastery and were delivering solid financial results by working together with the separate business units. However, the corporation knew that they could improve their skills further and achieve additional breakthrough results.

The client sought out Argo to apply operational excellence best practices developed over more than 25 years of experience helping manufacturing and asset intensive companies install Lean methods in their operations.

Argo was brought in to coach these internal leaders to gain additional benefits and experience, and to implement a fact-based certification program to progress these leaders to their next phase in development over a period of 2 years.

After 3 years of the program and progression of the different continuous improvement projects the company is on track to generate \$150 million in cost-savings and margin increases.

As part of the initiative the company was targeting challenges such as:

- Increase capacity and throughput of specific process areas and equipment such as heavy loaders, boilers, load / off-load racks. Multiple pieces of equipment suffered from chronic downtime.
- Maintenance productivity and wrench time. Wrench time was estimated at about 40% and with multiple areas of potential waste particularly in “first starts”, equipment ready for maintenance and cross-craft coordination.
- Base maintenance and special OPEX projects contractor costs. Inefficient planning / scheduling and coordination of contractor work was increasing direct labor and OT costs of contractors. Embedded contractor headcount was almost 70% of internal base maintenance employee headcount.
- Standardization of Supervisors, Superintendent and Managers Work and Performance management. Lack of clear craft performance metrics and Leader Standard work for managers created inconsistencies.

ARGO'S ACTIONS

The Argo team worked in the front-lines with these internal coaches to guide them and train them during the execution of dozens of Rapid Improvement Projects (Kaizens) to achieve tangible benefits. The Argo team also helped the CI internal team develop an assessment tool to evaluate potential projects and decide on whether they would render REAL and MEASURABLE financial impact:

DEPLOYMENT OF A PROJECT VALUE ASSESSMENT TOOL

Argo and the internal client team developed an internal tool to dynamically evaluate project proposals incoming from different areas of the business. Engagement from maintenance, reliability and operations areas was high, thus many projects were proposed for execution. Many projects did not have a direct impact on results, safety or reliability and were deemed as “nice to have”. The internal team needed an evaluation tool which would assess projects on all their merits but primarily on their economic impact. The criteria included:

- Uptime of equipment
- Labor Productivity
- Material and rentals costs
- Contractors' cost

- Technical services costs
- Impact on safety, regulatory and environmental
- Time and cost to implement (No Capex projects)
- Engagement level of the business area where proposed

DEBOTTLENECKING AND THROUGHPUT INCREASE AT CRITICAL PRODUCTION AREAS

One specific area that benefited the most from these types of projects was the mine and extraction operations. Management needed to increase overall daily tonnage moved from the oil sands mine to the crusher and extraction operation.

Argo and the internal CI team started by completing an end-to-end comprehensive value stream map of the trucks scheduling to hopper / crusher unload process to haulers and supporting equipment maintenance and turnaround procedures.

The teams applied Cycle Time Compression (SMED) techniques to analyze hauler turnaround / cleaning / preparation steps. A reduction of 20% - 25% in turnaround time was achieved with significant impact on uptime of the equipment.

Another multi-functional team led by Argo and a CI Coach, performed several Rapid Improvement projects to apply structured problem-solving techniques and in-depth root cause analysis to assess the downtime of the hopper / crusher equipment. After a 3-month process and several projects the team was able to increase uptime by 5 percentile points.

LEADER STANDARD WORK FOR SHOP LEADERS

The CI Leaders worked with multiple area manager to establish standard operations not just for the people on the shop floor, but throughout the middle and managerial ranks of their departments. First by mapping and documenting all the value adding steps of managers' days (and doing multiple "day in a life" observations) and by using visual management tracking tools for critical daily activities, the improvement teams were able to set-up a framework of accountability and rigor.

VISUAL PERFORMANCE BOARDS AT ALL MAINTENANCE SHOPS

All craft areas needed to improve their daily performance dialogue to ensure all crews were starting their days with a clear idea on how to reach their KPI goals. In several of the rotating equipment shops their "tool box" talks were limited to handing out work-orders and talking about safety practices.

Argo and the CI internal teams started the process by launching a series of training sessions with practical application defined as "Lean Boot Camps". These sessions introduced in-depth discussions about the 8 types of waste and Lean principles such as: 5-S, Visual Management, Quality at the Source, Flow and others. Mechanical, Electrical, Instrumentation Teams were tasked with designing and constructing their own SQCD (safety, quality, cost, delivery) Boards to track Lean Opportunities and track critical KPI's, and to use for their daily "tool box" meetings.

RESULTS

Implementation of the SQCD boards increased the interaction and communication within the different crafts. Visual tracking of metrics had a noticeable impact on performance and "first starts" times were reduced from 60 to 30 minutes.

Tracking of “barriers to execution” was determined to be one the most important indicators to focus on by all the crafts given the lack of coordination and confidence in the schedule between maintenance and operations. After collecting this data for several months, “root cause” analysis sessions were started to eliminate the barriers. CI teams estimated the elimination of barriers had an impact of almost 25% in maintenance wrench time in some areas.

Improving throughput and uptime of haulers in the mine and extraction area had an impact of over \$10 Million of value for the business.

Rapid Improvement projects as well as other Continuous Improvement Initiatives in operational areas such as: mine, upgrader, synthetic crude operations, reliability, maintenance and others had a collective impact of over \$50 Million during the first 18 months of the program and reached combined bottom-line savings of \$150 Million after continued application.

To maximize cost-saving and/or margin-generating opportunities organizations must equip their internal CI leaders with the necessary skills to galvanize change. Mid-level and supervisor-level leaders may lack the facilitation, influence and overall managerial skills to navigate the politics within these complex organizations. By providing leadership and managerial skills-building sessions, oil and gas companies can develop CI leaders who generate tangible results instead of playing a supporting role or focusing on non-value adding projects.



Argo is an operations improvement consulting firm that breaks through the traditional barriers of the consultant-client relationship. We are hands-on consultants who deliver real results and no excuses.

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