



Increasing Throughput: On Time, On Budget, Right Quality.

More Orders, More Problems

Having too many orders to get out on time for a growing number of customers may sound like a good problem, but it's a problem, nonetheless. No business can afford to disappoint customers with late shipments, encourage buyers to consider competitor alternatives, rush the team to the point of risking compromised quality, or burn out a dedicated but work-weary staff with production volumes out of balance with capacity. Equally concerning, firms must make sure their operating margins are not eroding from excessive overtime, high premium expedited shipping costs, and reworking products missing the mark on customer specifications.

Obstructions, So Many Obstructions

Our manufacturing partnerships take shape in various ways depending on particular client aspirations, special industry requirements, business cycle concerns, functional expertise needs, management & ownership changes, business investment patterns, and client customer base evolution. In this particular Capital Equipment experience case, our partner was struggling to get their machines designed, assembled, and shipped out in time to meet customer installation deadlines. After years of slow sales, pent up demand came flooding in and they simply did not have the business calibrated to handle their freshly-generated double digit growth.

Adding wrinkles of difficulty to an already tough situation, the firm was struggling to hire qualified employees in all departments. *Good News:* the vast majority of the team included very senior, highly experienced employees with decades of dedication and experience. *Bad News:* Management was scrambling to find new talent to join the firm and offset their rapid retirement rate. Compounding the talent scarcity, years of warning college students against going into manufacturing were taking a toll — most graduates in the region were hesitant to join a manufacturing firm — even with very competitive compensation, mentoring programs at community colleges, and top notch on-the-job training. New applicants were just not there. Meanwhile, the firm had to cover shifts with excessive overtime to keep up with demand. It's true employees wanted some overtime - but the levels currently being worked were unsustainable. Outsized overtime scheduling was straining the Operations team as they added a third shift and scheduled crews on weekends to get the machines out.

Another challenge: inability to see work progressing in a systematic way—whether looking at the various disconnected data trails or walking up to machines-in-progress out on the floor. Machine assembly could range from 2 weeks for standard configuration to 6 months for a highly customized, one-off model. Customers had immense choice in configuring their machines but the Sales Team did not have quoted lead times for all these permutations backed with data tied to current operational capabilities — only antiquated estimates influencing expectations.

Furthermore, Operations did not have the data visibility to manage their crews according to reasonable expectations while moving machines across the work cells.



MANUFACTURING

Case Synopsis:

- Building up rapid cross-departmental coordination and tech-enabled operational capabilities in a capital equipment manufacturing company

Client Profile:

- **\$350MM** U.S.-based, Private Equity-owned equipment designer & manufacturer with international customer base

Financial Results Examples:

- **80%** increase in year-over-year EBITDA
- **60%** reduction in overtime costs

Operational Results Examples:

- **26%** increase in throughput
- **39%** decrease in order-to-ship lead-times
- **22%** improvement in parts availability

Organizational Benefits:

- Customized, easy-to-use production work flow and constraint visibility tools
- Comprehensive work-to-time standards updated in ERP system
- Visual Control Room across Sales, Engineering, Fabrication, Materials Management, Operations, Internal Improvement, and Shipping
- Cloud-based Management Dashboards with operating indicators, constraint analysis, and departmental service levels cascading to all Supervisors
- Sales and Operations Planning collaboration process and control tools
- New Just-In-Time Materials Management fulfillment processes and Vendor Relationship program
- Employee Professional Development Program and customized tool sets
- Trainer Workshops: how do daily on-the-floor decisions impact our team's financial results?



Another issue: Management had plenty of standard financial reports and several ad hoc operating reports created in isolation by industrious managers — but not a comprehensive data hierarchy with leading operational indicators locked on financial goals and flowing into existing financial reporting. Most perplexing, departments did not have a good grasp on the types of constraints tripping up their teams along the way. Without the data to confirm they were on the right track or sound the alarm when machines were behind, management reviews were more about voicing conjecture and past experiences rather than allowing the data to plead the case. The team needed to be able to pinpoint when problems arose, what were the chances of this recurring, and what was being done to prevent future constraints from becoming more prevalent.

Finally, the team's biggest obstruction to getting machines out unfortunately originated across several key departments — Sales, Engineering, Materials, Assembly, and Shipping — due to inefficient and counterproductive communication channels. The departments were working with furious intensity albeit with a myopic focus to get their own responsibilities accomplished; unfortunately, their isolated effort was optimizing components of production rather than the total flow — causing unforeseen problems down the line, creating painfully expensive headaches for their colleagues in other departments, and crippling overall order-to-ship times. One example: Assembly was notorious for grabbing components out of docked shipments before Materials even had a chance to enter receipt of goods and place the components in their rightful area. No surprise: moving outside of the system created all sorts of problems including unreliable inventory levels, parts floating around the shop floor, and frustrating animosity between Materials and Assembly.

Always A Collaborative Partnership

Engaged to quickly build up throughput capabilities without exorbitant labor and material costs, our improvement team was comprised of 25 members - including Executives, Department Managers, Supervisors, Controllers, and Consultants.

While skills sets varied (specialties included data analysis, lean manufacturing, supply chain, talent management program implementation, data hierarchy development, dashboard implementation, process optimization, change management, and project management), all team members knew the goal: building up embedded throughput capabilities so desperately needed (yesterday) while generating millions in cost-savings through our collaboration.

Agile Approach, Customized Fixes

After our initial analysis outlined the most valuable opportunities to accelerate production flow, the team designed, tested, and implemented key production and cost controls incorporated into the firm's existing lean processes and information systems. Our partnership was instrumental to quickly overcoming painful, expensive issues plaguing getting machines out on time and aligned with customer expectations. Through our focused collaboration, the team achieved everybody's shared objective of getting more machines out while simultaneously ratcheting down excess labor costs, material handling costs, and employee frustrations in the process. Several key system elements doing the heavy lifting and accelerating finished goods velocity included:

Updated Work-To-Time Data Flow Through Enterprise Resource Planning System — new data flow and data maintenance process allowed Managers and Supervisors to know where the team stood on all machines-



Catalyft Team's Past Experiences:

200+
Manufacturing Projects

12+
Types of Enterprise Resource Planning (ERP) Systems incorporated

25
Manufacturing Sub-sectors Covered

250
Average Manufacturing Employee Base Engaged

4.0 to 1
Manufacturing Historical Average Return On Investment



in-process and for work to be planned and realistically segmented across work cells. Trustworthy work-to-time relationships allowed all Supervisors every shift to manage their team more precisely and sound the alarm for help earlier in production before time and resources evaporated in the their struggle.

Revamped Sales And Operations Planning (S&OP) — Operations developed a very precise, clear view of machines-in-process. The team used timely performance data to manage the floor and, with alacrity, now shared their production insights with Sales. The weekly S&OP review meetings were built around facts rolling from up the shop floor rather than perpetuating the former, unhelpful practice of laying deeper blame across departments. Now, Sales could estimate delivery times with greater accuracy and set proper expectations with customers based on current production flow.

Centralized Control Room — essential to getting the departments collaborating with a regular cadence and get away from working in isolation, the Control Room allowed the team to visualize their work, understand the implications of their decisions on other departments, see potential problems before they arose, and provide a forum to explore solutions together using data. This new capability was a particular favorite for our partners because the process and tool sets employed were highly visual, easy to understand, and simple to maintain.

Management Dashboards With Cascading Data — with operational performance data now rolling up from every Supervisor to Department Managers and right on up to the Plant Manager, current progress was very easy to see in a clear, compelling way. The team was now able to tackle constraints in a more logical, cost-effective manner through pareto analysis capturing barriers to getting machines out every shift. Nice and simple constraint visibility allowed Management to see where they could lend more support to a particular department or shift. Now, the team was working on their schedule-busting top priorities every week as a normal course of managing their business.

Materials Management Parts Flow Redesign — the team reconfigured receiving docks, staging areas, storage rack systems, and parts handling protocol to allow parts kits to be placed right next to each machine. The Radio Frequency Identification (RFID) tagging system was optimized to ensure all parts never lost their way or found unauthorized homes. In addition, easy-to-read visual monitors sharing parts status and flagging concerns were placed right out on the shop floor for all departments to see.

Talent Management Improvements — our partnership developed a comprehensive supervisory training program to support all Supervisors and make sure all received training on the new tools and work flow. Additionally, customized training content clearly illustrating how their day-to-day operational decisions had surprising financial repercussions was created. Finally, the team designed and implemented an easy-to-use Employee Scorecard to make sure Management was providing the skills development and professional environment pathways needed to retain seasoned veterans while developing newer employees at the pace they needed.

The Team's Results

Parts availability improved by 22%, overtime was reduced by 60%, and order-to-ship lead times were cut by 39%. Chipping away at constraints, machine throughput went up 26%. With Sales and Operations aligned around improved production capabilities and timely data, EBITDA grew by 80% year-over-year.



Our Way of Collaborating :

Identify



2-4 meetings at no cost

- Discussion of issues
- Alignment around probable causes
- Framing of analysis scope

Qualify



3-6 weeks at cost

- Qualify opportunities
- Quantify anticipated results
- Initial engagement design
- Key meetings: Launch, Opportunity Review, Solution Review, and Final Framing of analysis scope

Modify



4-8 months

- Final engagement design
- Execution of engagement design
- Realization & measurement of results
- Ownership & sustainability

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