CASE STUDY

Industrial Pipe Manufacturer Unlocks $1.7M in Operational Benefits Without New Capital

Client

A family-owned manufacturer of large-diameter underground drainage pipe operates multiple facilities across the U.S. and runs its flagship plant 24/7 to meet strong market demand.

Challenge

Running 24/7, the organization couldn't increase output using labor or overtime. Systemic issues—long changeovers, high scrap, and OEE near 50%—drained capacity and kept leaders in reactive firefighting mode.

Solution

TBM diagnosed capacity losses to confirm whether existing assets could meet ROI targets without new capital. They implemented a structured management system, visual performance management, changeover Kaizens, standardized OEE, and disciplined problem solving.

Results

- Scrap rates dropped from approximately 16% to 12%, reducing cost and freeing up productive capacity.
- Throughput increased by 347 pounds per hour overall
- Top-performing SKUs realizing gains of nearly 3,000 pounds per hour.
- Translating to more than $1.7M in annualized value at sustained performance levels.
- OEE improved and remained elevated after implementation.

From Firefighting to Flow: Unlocking Capacity, Reducing Scrap, and Building a Lasting Operating System

A family-owned manufacturer of large-diameter underground drainage pipe operates multiple facilities across the U.S. and runs its flagship plant 24/7 to meet strong market demand. Despite being fully sold out, the company struggled to increase output due to low OEE, excessive changeover time, high scrap rates, and a reactive, firefighting-driven culture. With labor and overtime already maxed out, leadership faced a critical decision: invest in new equipment or unlock capacity from existing assets. The company needed a disciplined operating system—one that could make performance visible, reduce variability, strengthen execution, and sustain improvement without additional capital investment.

Sold-Out Manufacturing Operation Struggles with Low OEE, Scrap, and Changeover Losses

At the time TBM was engaged, the company was doing what many manufacturers strive for—operating fully sold out. Customer demand was strong, the market was ready to absorb more product, and growth opportunities were clear. Yet despite running the flagship plant 24/7, the organization was unable to increase output. With labor and overtime already maxed out, traditional capacity levers were no longer available. This reality forced leadership to confront a pivotal question:

Should the company invest in new production equipment to add capacity—or could more be unlocked from existing assets?

Given the financial implications of that decision, the organization needed a fact-based, credible business case to move forward with confidence.

- Excessive changeover times, often stretching two to three days on large machines—well beyond the 16–20 hours targets
- Elevated scrap rates near 16%, nearly triple baseline expectations and a direct drag on output and cost
- OEE operating around 50%, with no consistent or reliable method to measure or manage performance

Underlying these performance gaps was a persistent firefighting culture. Leaders and operators were constantly reacting to issues rather than preventing them, driven by:

- Informal escalations and group-text decision making
- Reliance on tribal knowledge instead of standard processes
- Little to no structured root-cause problem solving

Without an **effective management system** to create visibility, accountability, and execution discipline, improvement efforts struggled to stick—and meaningful, sustained growth remained out of reach.

> **The facility was already up and running 24/7. Any improvements had to come from efficiency, flow, and discipline.**

Implementing a Tiered Management System to Drive Execution Discipline

TBM was first engaged to conduct an operational diagnostic — a structured current-state assessment of Lines 4, 5, and 6 at the headquarters plant. The objective was to understand what was driving capacity loss, quantify the opportunity, and determine whether improvement could deliver the needed ROI without additional investment.

What the diagnostic revealed shaped everything that followed. The losses were not random but systemic — traceable to poorly structured changeovers, inconsistent measurement, reactive management habits, and a near-complete absence of visual accountability. The path to more capacity was not through new machines. It was through disciplined execution on the existing ones.

Management System Implementation

TBM established Tier 1 and Tier 2 daily management routines for leader and teams to help bring more structure, visibility, and accountability to operations that had previously run on instinct and escalation. Visual management boards – SQDC boards, accountability boards, and a “war room” framework – made priorities, performance gaps, and required actions much easier to see across the organization. Leaders were coached to create a daily routine of walking the floor and jumping into the fray to help with problems, to coaching, facilitating structured problem solving, and managing through the new system.

Changeover Improvement

TBM conducted changeover Kaizen events to systematically analyze the sequencing, roles, preparation steps, and tooling associated with machine setups. The goal was to instill what team came to call a “NASCAR pit stop” mentality. When the machine goes down, everyone knows exactly what to do, their precise movements, where to be, the tools they need – and they are fully ready before a full shutdown has to occur.

Every action, step, and piece of equipment was in scope, with key actions ultimately including:

- Dedicated, locked toolboxes for each changeover, with only the required tools inside. Tools had been mysteriously walking away, absorbing valuable time. This stopped that from occurring.
- Clarity on roles and assignments, so everyone was on the same page before a machine stopped. This put an end to the “too many cooks” dynamic, which is never helpful.
- Preparation steps were moved before the shutdown, compressing the window of lost production time as much as possible.

OEE Capability Building

The client’s management team understood OEE conceptually but lacked a reliable way to calculate it consistently and accurately. TBM developed a custom Excel-based **OEE calculator** that allowed operators and shift leaders to input production data – pounds produced, machine speed versus target, actual operating hours – and to receive automatically calculated OEE by line, shift, and week.

This tool gave the organization something it had never had before: a shared, consistent view of performance across all lines. The dashboard enabled easy comparison across diameters and SKUs, surfaced where improvement was taking hold, and provided those “aha moments” that helped drive team engagement and focus.

Structured Problem Solving

TBM introduced fishbone diagrams and other structured problem-solving tools to replace the ad hoc group text escalation process that was serving as the client’s method of responding to quality and downtime issues. Operators were already aware of these tools; they simply weren’t using them. TBM coached and facilitated those activities, shifting the culture from “this is how it’s always been done” toward documented root cause analysis, defined ownership, and repeatable corrective action.

Compelling Financial Returns Achieved in the First Three Months

The improvements achieved were measured, sustained, and broad in terms of overall impact. Over a roughly three-month implementation period, performance across the four dual wall lines improved meaningfully – and stayed up. That durability was itself a signal that the changes were systemic and not situational. Some of the high-level results across key performance dimensions included:

Metric	Outcome
OEE	Improved meaningfully and remained elevated post-implementation, indicating that new practices were embedded, not episodic.
Scrap Rate	**Reduced from approximately 16% to 12% - a 25% reduction** - with further improvement anticipated as management routines continue to mature.
Throughput	Overall pounds per hour increased by 347 lbs/hr. Analysis of the top 20 performing SKUs showed gains of approximately 3,000 lbs/hr — **translating to over $1.6M in annualized value at those performance levels.**
Financial Impact	**Total benefits estimated at $743K to $1.7M for the initial three-month period.** Extrapolated across a full year, the savings represent a highly compelling return on the engagement investment.
Scope	Work subsequently expanded to inventory management and management system implementation at additional Timewell facilities, extending the gains beyond the original engagement scope.

TBM's Site Diagnostics, Delivered in a Short Time Frame

The diagnostic assessment provides a clear view of operational and organizational improvements and their impact on capacity, operational metrics, and potential financial performance.

1 Validation	2 Identification	3 Quantification	4 Prioritization
Create a current state value stream map through site observations, interviews, and data analysis	Evaluate improvement opportunities, gap closures, and change readiness	Determine operations and financial impact including a cost analysis bridge to performance	Develop a go-forward plan with quick wins and impact/difficulty analysis

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The Broader Lesson

This client's story is a very common one in manufacturing. A company grows, adds shifts, fills capacity – and then finds itself unable to grow further not because demand is lacking but because the operating system was never scaled alongside the operation. Putting out fires becomes the accepted norm. Tribal knowledge always wins out over new ways of thinking. And the people who are there to lead and teach are too far into the weeds in reactive mode.

In the end, what we brought to this particular firm was not just a set of tools but a structured path from reactive to proactive – one supported by fundamentals that translate across industries. Make performance visible, assign clear accountability, prepare before the machine stops, and solve problems at the root rather than patching later.

The result was better OEE numbers, yes, but longer term the work made the company a more capable, optimally functioning organization. A place where leaders now lead, operators solve problems, and the business is now growing into demand.

If you are constantly firefighting low OEE, long changeovers, and high scrap while running full out, you are not alone.

Connect with TBM to explore how our diagnostics and management system approach can unlock seven-figure value from the operations you already have.

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Speed wins every time.

TBM specializes in operations and supply chain consulting for manufacturers and distributors. We accelerate operational performance to make you more agile and help you accelerate business performance 3–5x faster than your peers.

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