



CASE STUDY 01

AI-Enabled Manufacturing Transformation Across 10 Textile Plants

Client Situation

A diversified textile manufacturing group operating 10 manufacturing plants across the textile value chain sought to improve operational performance, reduce conversion costs, strengthen EBITDA resilience, and institutionalise execution discipline across plants.

The organisation faced:

- fluctuating conversion costs,
- inconsistent plant performance,
- operational volatility,
- margin pressure,
- and a lack of standardised governance systems across plants.

The transformation program covered:

- Fiber Plant
- Yarn Spinning Units
- Dyeing House
- Processing House
- Non-Woven Plants
- Knitting Plant
- Wash Line operations

Problems Identified

High Sensitivity of Margins to Capacity Utilization

Analysis across all plants revealed that conversion cost per unit was highly dependent on:

- load stability,
- throughput discipline,
- and capacity utilization — not only operational efficiency.

Several plants experienced:

- high fixed cost absorption pressure,
 - unstable operational loads,
 - and inconsistent throughput.
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Operational Improvements Were Not Institutionalized

Although some plants demonstrated strong monthly performance improvements, these gains were not consistently sustained.

The organization lacked:

- Daily Work Management (DWM),
 - AI-enabled operational visibility,
 - structured governance systems,
 - OEE-driven control mechanisms,
 - and CXO-level execution dashboards.
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Significant Performance Volatility Across Plants

Plants showed varying levels of operational maturity:

- some were structurally healthy,
 - some were recovery-ready,
 - while others remained operationally volatile requiring stronger governance intervention.
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Lack of Replication of Best-Achieved Performance

A critical finding was that every plant had already demonstrated “best-achieved” performance internally within the prior six months.

However:

- best practices were not standardized,
 - performance control systems were weak,
 - and operational discipline varied across units.
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Actions Taken

Implemented AI-Enabled 4-Phase Transformation Framework

A structured transformation methodology was deployed across all 10 plants covering:

1. Client Discovery & Scoping
 2. Business Diagnosis
 3. Solution Design & Roadmap
 4. Execution Tracking & Dashboards
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Conducted Multi-Plant Operational Diagnostics

A detailed operational and financial analysis was performed using:

- conversion cost analysis,
- throughput evaluation,
- utilization assessment,
- EBITDA tracking,
- and unit-level P&L review.

The program established:

- baseline performance,
 - post-improvement tracking,
 - and internal benchmark comparisons.
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Identified “Best-Achieved” Internal Benchmarks

A structured analysis identified best-performing operational periods for each plant, proving that:

- operational capability already existed internally,

- and margin improvement was primarily a governance and replication challenge.

Examples included:

- Fiber Plant achieving lowest conversion cost after throughput improvement
 - Yarn Spinning Unit-1 reducing conversion cost significantly
 - Wash Line maintaining positive EBITDA with stable operational discipline
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Developed Plant Classification Framework

Plants were strategically categorized into:

- Structurally Healthy
- Recovery-Ready
- Structurally Volatile

This enabled:

- targeted interventions,
 - governance prioritization,
 - and focused operational recovery planning.
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Established Governance & Execution Improvement Roadmap

The transformation program identified organization-wide governance gaps and recommended:

- Daily Work Management (DWM),
 - AI-enabled dashboards,
 - OEE-based operational controls,
 - daily/weekly management reviews,
 - and structured execution governance systems.
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Quantified / Strategic Outcomes

Significant Conversion Cost Improvements Identified

Multiple plants demonstrated measurable post-November operational improvements:

Fiber Plant

Conversion cost improved significantly through throughput increase and better absorption leverage.

Yarn Spinning Unit-1

Achieved major conversion cost reduction from baseline through operational stabilization and utilization improvement.

Master Batch Unit

Sharp improvement in conversion cost and EBITDA performance after operational correction initiatives.

Non-Woven Carpet Plant

Operational efficiency improvements sustained through January following throughput-focused interventions.

Established Data-Driven Operational Visibility

The engagement created:

- portfolio-level operational visibility,
- plant-wise performance intelligence,
- benchmark identification,
- and structured decision-support frameworks.

Identified Core Margin Drivers Across Plants

The analysis conclusively demonstrated that:

- load stability,
- capacity utilization,
- and governance discipline

were the primary determinants of operational profitability.

Created Foundation for AI-Enabled Operational Governance

The program established the roadmap for:

- AI-enabled dashboards,
 - real-time operational monitoring,
 - governance systems,
 - and structured execution control.
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Enabled Strategic Transformation Direction Without Major Capex

A major insight from the transformation initiative was:

“Margin expansion was achievable primarily through governance, discipline, throughput stabilization, and operational control — without major capital investment.”

Key Capabilities Demonstrated

- AI-Enabled Manufacturing Transformation
 - Operational Governance Frameworks
 - Conversion Cost Optimization
 - Manufacturing Performance Diagnostics
 - Daily Work Management (DWM)
 - KPI & Dashboard Systems
 - EBITDA Improvement Analysis
 - Throughput & Utilization Optimization
 - Multi-Plant Operational Benchmarking
 - Data-Driven Decision Support
 - Manufacturing Strategy & Execution Alignment
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