Operational Efficiency Analysis And Ebitda Improvement Strategies: A Case Study Of Indonesian Construction Chemicals Distribution

Faldy Ilman Fariski

School of Business and Management, Institut Teknologi Bandung , Jakarta Selatan, Indonesia.
*Corresponding Author:
Email: faldylight@gmail.com

Abstract.

This study investigates the operational efficiency paradox in a mid-sized Indonesian construction chemicals distributor experiencing significant revenue growth (73.4% from 2022-2024) alongside declining EBITDA margins (from 7.07% to 6.50%). Using Activity-Based Costing, Value Stream Mapping, Porter's Value Chain Analysis, and industry benchmarking, the research identified seven critical operational inefficiencies costing IDR 1.36-1.79 billion annually (37-48% of operating income). Key inefficiencies include inventory management deterioration (turnover declining from 13.21x to 9.60x), warehouse productivity deficits (20-36% below industry benchmarks), and technology underutilization. The study developed a comprehensive three-phase improvement roadmap requiring IDR 1.54 billion investment to generate IDR 2.32 billion in recurring annual savings, projecting operating margin improvement from 6.50% to 10.56%. Phase 1 quick wins (IDR 165M investment) deliver 311% ROI within 3 months, demonstrating self-funding viability. Benchmarking against industry standards validates improvement targets as conservative and achievable. The research contributes to operations management literature by demonstrating integrated framework application in emerging markets and provides practical guidance for mid-sized B2B distributors facing similar profitability challenges.

Keywords: *Operational efficiency; EBITDA optimization; activity-based costing; value stream mapping; distribution management; inventory optimization and emerging markets.*

I. INTRODUCTION

Indonesia's construction sector has experienced accelerated growth, contributing over 10% to national GDP and employing millions across the industry [1]. This expansion creates substantial demand for construction chemicals including waterproofing materials, grouts, sealants, and protective coatings. However, companies in this sector face increasing operational complexity as they scale, often experiencing a profitability paradox where revenue growth does not translate proportionally to margin improvement. PT Axia Tekindo Semesta, established in 2010, operates as both applicator and distributor for international construction chemical brands including Sika, Fosroc, and Master Builders Solutions. The company manages 580 active stock-keeping units (SKUs) serving diverse market segments including contractors, property developers, retailers, and government clients. From 2022 to 2024, the company achieved impressive revenue growth from IDR 27.41 billion to IDR 46.94 billion, representing a 71% increase. However, EBITDA margins declined from 16.0% in 2022 to 12.6% in 2024, despite absolute EBITDA growing from IDR 4.4 billion to IDR 5.9 billion [2]. Table 1 presents the financial performance trends highlighting this profitability paradox.

Table 1. Financial Performance Summary (2022-2024)

Metric	2022	2023	2024
Revenue (IDR Bn)	32.99	39.37	57.20
Operating Income (IDR Bn)	1.38	2.78	3.72
Operating Margin (%)	**4.19**	**7.07**	**6.50**
Inventory Turnover (x)	10.53	13.21	9.60

This phenomenon of revenue growth accompanied by margin compression is characteristic of distribution-intensive sectors where operational expenses grow unchecked without corresponding process improvements [3,4]. Prior research has extensively documented how inefficiencies in logistics, inventory management, and order fulfillment impact distributor margins [5,6]. However, limited research examines this

challenge specifically in mid-sized emerging market distributors, particularly in the specialized construction chemicals sector requiring both technical expertise and efficient distribution capabilities.The research problem addresses a critical gap: while the company successfully expanded its market presence and revenue base, operational costs escalated at 78%, significantly outpacing revenue growth and constraining profitability. Without intervention, these inefficiencies threaten continued margin erosion, cash flow constraints, competitive disadvantage, and operational fragility.

This study employs established operations management frameworks—including Porter's Value Chain Model [7], Activity-Based Costing [8,9], Time-Driven ABC [10], Lean Operations and Value Stream Mapping [11,12], and Enterprise Resource Planning integration concepts [13]—to systematically diagnose inefficiencies, quantify cost drivers, and develop actionable improvement strategies. The research addresses four specific questions: (1) What is the current state of operational performance and EBITDA? (2) What are the core operational inefficiencies causing EBITDA decline despite revenue growth? (3) How does performance compare to industry benchmarks? (4) What improvement strategies should be implemented to enhance efficiency and restore EBITDA growth? The contribution of this research is threefold. First, it demonstrates practical application of integrated operational excellence frameworks in an emerging market B2B distribution context, addressing a literature gap. Second, it provides detailed quantification of the relationship between specific operational inefficiencies and financial performance, establishing measurable improvement potential. Third, it offers a validated implementation roadmap with phased deployment, financial projections, and risk mitigation strategies applicable to similar mid-sized distributors in developing economies.

II. METHODS

This study employs a single embedded case study design [14] using mixed-methods approach combining quantitative financial and operational analysis with qualitative insights from interviews and process observations. The research design is grounded in pragmatist philosophy, prioritizing practical problem-solving over theoretical abstraction [15].

Data Collection

Primary data collection involved semi-structured interviews with 10 key informants across functional areas (CEO, Finance Manager, Operations Manager, Warehouse Supervisor, Procurement Manager, Sales Manager, and operational staff), direct process observations conducted over 7 workdays in warehouse and logistics operations, and time studies for 15-30 samples per activity supporting Time-Driven Activity-Based Costing implementation. Secondary data included audited financial statements (2022-2024), operational records (inventory levels, order volumes, delivery metrics), and internal documentation (SOPs, process maps, performance reports).

Analytical Framework

The study integrated five complementary methodologies. Financial and trend analysis assessed EBITDA performance trajectory, cost structure evolution, and working capital dynamics using standard financial ratios and year-over-year comparisons. Activity-Based Costing allocated costs to activities based on resource consumption, identifying true cost drivers and profitability variation across products, customers, and channels [8]. Given data limitations for 2022-2023, Time-Driven ABC employed time estimates and capacity cost rates as a pragmatic alternative [10].Value Stream Mapping visualized material and information flows from supplier to customer, distinguishing value-adding from non-value-adding activities and identifying waste and bottlenecks [12]. Porter's Value Chain Analysis systematically examined primary activities (inbound logistics, operations, outbound logistics, marketing/sales, service) and support activities (infrastructure, human resources, technology development, procurement) to assess cost efficiency and value contribution [7].Benchmarking compared operational metrics against industry standards from APICS Supply Chain Operations Reference (SCOR) Model, Council of Supply Chain Management Professionals (CSCMP), Warehouse Education and Research Council (WERC), and regional distribution sector benchmarks [16,17]. Where Indonesia-specific benchmarks were unavailable, Southeast Asian proxies and international best practices were employed.

III. RESULT AND DISCUSSION

Current State Assessment

Financial analysis revealed PT Axia achieved remarkable revenue growth from IDR 32.99 billion (2022) to IDR 57.20 billion (2024), representing 73.4% expansion. However, operating margins peaked at 7.07% in 2023 before declining to 6.50% in 2024, falling 1.5-5.5 percentage points below the industry benchmark of 8-12%. Operating expenses grew 55.9% to IDR 6.54 billion, while gross margin deteriorated from 19.88% (2023) to 17.94% (2024).Working capital management showed mixed performance. Days Sales Outstanding improved dramatically from 99.8 to 63.1 days, releasing approximately IDR 5.75 billion in working capital. Conversely, inventory management deteriorated significantly with turnover declining 27.3% from 13.21x to 9.60x, and Days Inventory Outstanding increasing from 27.6 to 38.0 days. Inventory value increased 87.8% compared to 73.4% revenue growth, indicating misalignment between purchasing and actual demand.

Operational Inefficiencies Identified

Activity-Based Costing and Value Stream Mapping identified seven critical inefficiencies with estimated annual cost impact of IDR 1.36-1.79 billion (37-48% of operating income). Table 2 summarizes the identified inefficiencies, their root causes, and financial impact.

Table 2. Summary of Operational Inefficiencies and Financial Impact

Inefficiency	Root Cause	Annual Cost (IDR M)
Inventory Management	Poor forecasting, no ABC classification, SLOB accumulation	139.5-385
Warehouse Operations	Suboptimal layout, manual processes, high error rates	318
ERP Underutilization	Manual workarounds, redundant data entry	243-282
Transportation	No route optimization, poor capacity utilization	100-180
External Consulting	Lack of internal technical capability	285-380
SLOB Inventory	No systematic identification/liquidation	110
Procurement	Supplier fragmentation, weak leverage	469-939
TOTAL		**1,360-1,790**

Benchmarking Results

Comparative analysis positioned PT Axia at 62/100 composite performance score, placing the company in the lower quartile of the distribution industry. Table 3 presents the benchmarking comparison across key operational dimensions.

Table 3. Performance Benchmarking vs. Industry Standards

Metric	PT Axia 2024	Industry Benchmark	Gap
Operating Margin (%)	6.50	8-12	-1.5 to -5.5pp
Inventory Turnover (x)	9.60	10-12	-0.4 to -2.4x
Orders/Labor-Hour	16	20-25	-20% to -36%
Days Inventory (days)	38.0	30-35	+3 to +8 days
Technology Investment (% revenue)	0.5	1.0-1.5	-0.5 to -1.0pp

Technology adoption assessment revealed absence of Warehouse Management System, Transportation Management System, advanced demand forecasting tools, and business intelligence platforms. Validation against documented industry case studies from Aberdeen Group, WERC, Gartner, and CSCMP confirmed improvement targets are conservative and achievable. Comparable mid-market distributors implementing similar initiatives achieved 28-35% inventory turnover improvements, 20-40% warehouse productivity gains, and 2.8-4.2 percentage point EBITDA margin improvements [18,19,20].

IV. IMPROVEMENT STRATEGIES AND FINANCIAL IMPACT

Improvement Roadmap

The research developed a comprehensive three-phase roadmap comprising 10 prioritized initiatives based on financial impact and implementation feasibility. Table 4 summarizes the phased implementation plan with investment requirements and projected returns.

Table 4. Three-Phase Implementation Roadmap and Financial Impact

Phase	Key Initiatives	Investment (IDR M)	Annual Savings (IDR M)	Payback (months)
Phase 1 (0-6m)	ABC Inventory, SLOB Liquidation, Route Optimization, ERP Training	165	678	**3**
Phase 2 (6-18m)	Warehouse Redesign, WMS Implementation, Strategic Sourcing	750	573	16-25
Phase 3 (12-24m)	Demand Forecasting, Internalize Consulting, BI Dashboard	625	1,072	7-12
TOTAL		**1,540**	**2,323**	**12-18**

Financial Impact Summary

Total program requires IDR 1.54 billion investment to generate IDR 2.32 billion recurring annual savings, representing 51% Year 1 ROI and exceeding 100% from Year 2 onward. Overall payback period is 12-18 months. EBITDA would increase from IDR 3.72 billion to projected IDR 6.04 billion (+62.5%), with operating margin improving from 6.50% to 10.56% (+4.06 percentage points).Phase 1 quick wins deliver 311% ROI within 3 months, enabling self-funded transformation where early savings finance subsequent phases. Critical success factors include executive sponsorship through CEO-led steering committee, dedicated project management office, comprehensive change management programs, phased implementation allowing validation, and risk mitigation strategies addressing resistance to change, implementation delays, technology integration issues, and resource constraints.

V. CONCLUSION

This research systematically investigated the operational efficiency paradox facing PT Axia Tekindo Semesta, where substantial revenue growth (73.4% over 2022-2024) occurred alongside declining EBITDA margins (from 7.07% to 6.50%). Through integrated application of Activity-Based Costing, Value Stream Mapping, Porter's Value Chain Analysis, and industry benchmarking, the study identified, quantified, and validated seven critical operational inefficiencies costing IDR 1.36-1.79 billion annually, equivalent to 37-48% of operating income.Key findings demonstrate that inventory management deterioration, warehouse productivity deficits, technology underutilization, transportation inefficiency, external consulting dependency, slow-moving inventory accumulation, and procurement fragmentation collectively create systematic profitability constraints despite successful market expansion. Benchmarking analysis positioning the company at 62/100 composite performance score validates that identified inefficiencies represent addressable deficits that comparable distributors have successfully remediated.The comprehensive three-phase improvement roadmap requiring IDR 1.54 billion investment to generate IDR 2.32 billion recurring annual savings demonstrates financial viability with 51% Year 1 ROI. Full implementation projects operating margin improvement from 6.50% to 10.56%, transforming PT Axia from lower-quartile to above-average performer exceeding industry benchmarks.

The research makes three principal contributions. First, it demonstrates successful integration of multiple operations management frameworks in emerging market B2B distribution contexts. Second, it provides detailed quantification linking specific operational inefficiencies to financial performance. Third, it offers a practical implementation roadmap with phased deployment, financial projections, change management strategies, and risk mitigation protocols applicable to similar distributors facing profitability challenges.For practitioners, this research demonstrates that operational excellence represents a strategic enabler of sustainable profitability rather than simply cost reduction. The self-funding implementation

pathway proves viability for capital-constrained mid-sized firms. Investment in operational excellence today creates competitive advantage enabling sustainable growth and market leadership tomorrow.

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