Yarn Realization:
Key to Profit in Global Competitive Landscape for Indian Spinners

wazir ADVISORS

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Preface

The global textile industry is navigating a phase of significant disruption marked by escalating raw material costs, geopolitical tensions, supply chain instability, and intensifying global market dynamics. Spinning mills, positioned at the heart of the textile value chain - are now facing tighter yarn-fibre spreads and growing pressure on margins. In this scenario, maintaining profitability requires sharp focus on cost control and operational excellence.

India's spinning sector is at the frontline of these challenges. Cotton, the industry's primary raw material, has seen substantial price fluctuations, driven by both domestic and international factors. Mills are also grappling with supply chain constraints and intensified competition from countries like Vietnam, Indonesia, Pakistan, Bangladesh, and China. In response, Indian mills must move beyond reactive cost-cutting and instead focus on proactive efficiency - prioritizing on how effectively raw material is converted into value.

Yarn realization - a critical metric measuring the yield of yarn from fibre is a powerful lever in this context. Even marginal gains in realization can significantly improve bottom lines. Thus, sustained profitability is driven by better raw material management and operational strategies.

This whitepaper delves into cost dynamics reshaping the global spinning landscape, with an emphasis on the pivotal role of yarn realization in navigating them. It explores operational levers that can drive improvements in yarn realization and presents a quantitative analysis of how even marginal enhancements in this area can contribute to overall financial performance. By identifying actionable insights and industry best practices, this paper aims to provide spinning mills with the knowledge required to navigate the challenging business environment.

We trust this whitepaper will be a valuable resource for industry stakeholders including mill owners, operations managers, and decision-makers seeking to enhance their market position and drive sustainable growth in the spinning sector. By focusing on optimizing yarn realization and implementing best practices, stakeholders can navigate current challenges and position their operations for long-term success.

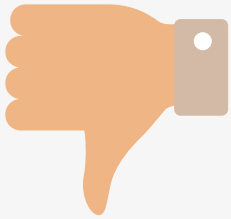
Small Improvement → Big Impact

+2% Yarn Realization* → **₹5 Cr. Annual Savings**

This significant impact is achievable through small improvement driven by operational re-engineering, including waste reduction and process optimization. Such improvements not only reduce material waste but also enhance productivity, contributing to sustainable growth.

Prevailing Practice

- Wrong cotton purchase
- Inefficient raw material checking
- No bale laydown planning
- High waste generation in blowroom, carding, comber etc.
- Poor machine upkeeps
- Non-compliance of SOPs[1]



Industry Best Practice

- **Right cotton** for desired count
- **Efficient** raw material checking
- **Laydown** and soft waste mixing planning
- **Waste optimization** through yarn engineering
- **Implementing** and **monitoring** of TPM
- **Adherence to SOPs**

*For a 50,000 spindles spinning unit
[1]SOP - Standard Operating Procedure

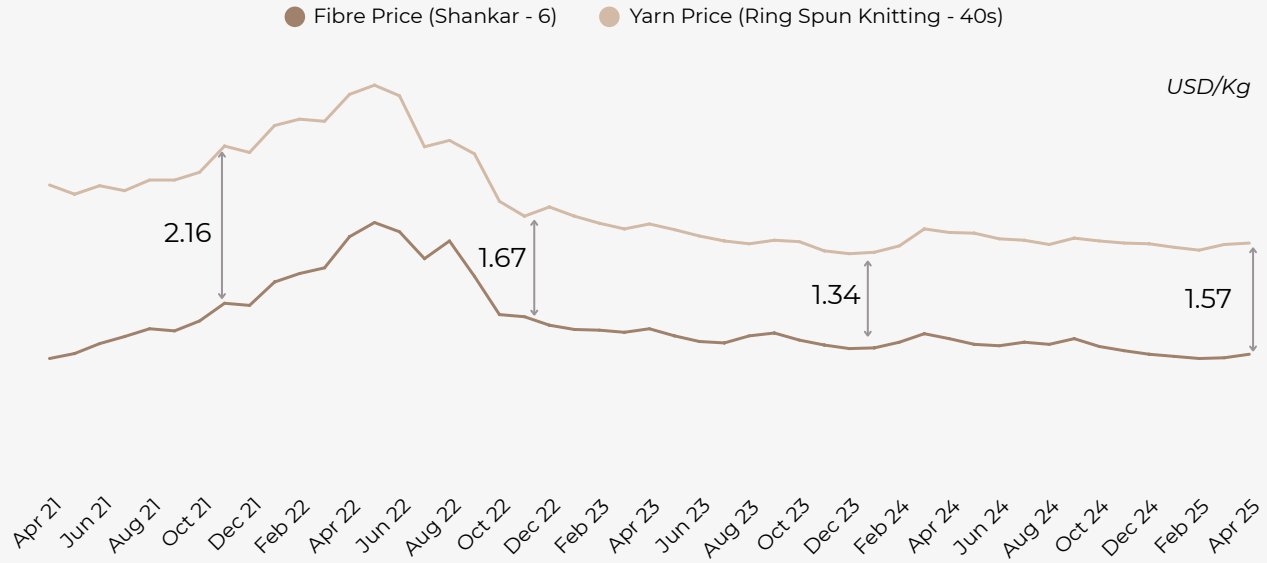
Introduction

Raw Material Cost: The Dominant Driver in Yarn Manufacturing

Raw material is the single largest component in the cost structure of spun yarn manufacturing, accounting for over **60% – 70%** of the total cost. This dominance means that any fluctuation in fibre prices directly impact yarn pricing and profitability.

Over the last few years, rising cotton prices - both domestic and international have led to a narrowing spread between yarn and fibre prices. This has severely compressed gross margins, leaving Indian spinning mills with little buffer to sustain profitability. As illustrated in figure 1, this margin pressure has persisted consistently from 2022. This margin squeeze has intensified competition across the spinning industry, both domestically and in export markets.

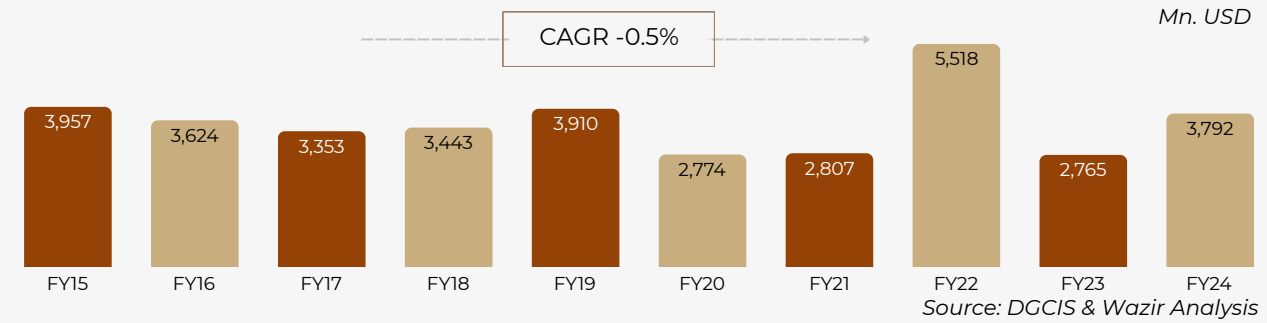
Figure 1: Fibre vs Yarn Price in India (2021 - 2025)



Source: Emerging textiles & Wazir Analysis

India's cotton yarn exports over FY15 – FY24 show no consistent upward trend, with volatile year-on-year movement. Despite a peak in FY22, the industry remains susceptible to global demand shifts, price sensitiveness, and trade policies. The FY24 recovery points to a potential positive outlook, but sustainability will depend on cost optimization, market diversification, and value-added offerings.

Figure 2: India's Cotton Yarn Exports (FY15 - FY24)



Source: DGCIS & Wazir Analysis

Bridging the 10-Cent Gap: Critical Role of Raw Material Cost in a Competitive Landscape

India's yarn manufacturing maintains a strong pricing edge. However, as evident from table 1, countries such as Vietnam, Bangladesh, Indonesia, and Pakistan are rapidly closing the cost gap or even outperforming India, largely due to more affordable and stable access to raw materials.

This shift has reversed India's traditional advantage and edge over peer economies. For decades, **Indian cotton was among the cheapest globally. Today, however, international cotton often undercuts domestic prices, placing Indian exporters at a disadvantage in securing global orders.** As a result, Indian cotton yarn is losing its edge in the international market, and the competitive landscape is becoming increasingly tight. To offset this, the focus must shift to achieving higher yarn realization as the key lever to control raw material cost.

Table 1: Manufacturing Cost in Key Countries (2022)

USD/Kg of yarn

Product	India		Vietnam		Bangladesh		Pakistan		Indonesia	
	Value	Share#	Value	Share	Value	Share	Value	Share	Value	Share
Waste	0.29	26%	0.33	30%	0.32	28%	0.28	24%	0.33	28%
Labour	0.04	4%	0.09	8%	0.03	3%	0.04	3%	0.06	5%
Power	0.27	25%	0.21	19%	0.26	23%	0.27	23%	0.27	23%
Auxiliary Material	0.11	10%	0.12	11%	0.12	11%	0.12	10%	0.11	9%
Capital*	0.39	35%	0.36	32%	0.4	35%	0.46	39%	0.43	36%
Cost of Mfg.	**1.10**	100%	**1.11**	100%	**1.13**	100%	**1.17**	100%	**1.20**	100%
Ranking	**1**		**2**		**3**		**4**		**5**	

Source: ITMF & Wazir Analysis

Although India maintains a cost advantage in labour and energy costs, the rising cost and volatility of raw cotton significantly dampen this advantage. Indian mills sourcing domestic cotton often pay a premium compared to their global counterparts that import from international market.

#%Share of the total yarn manufacturing cost
**Depreciation & interest*

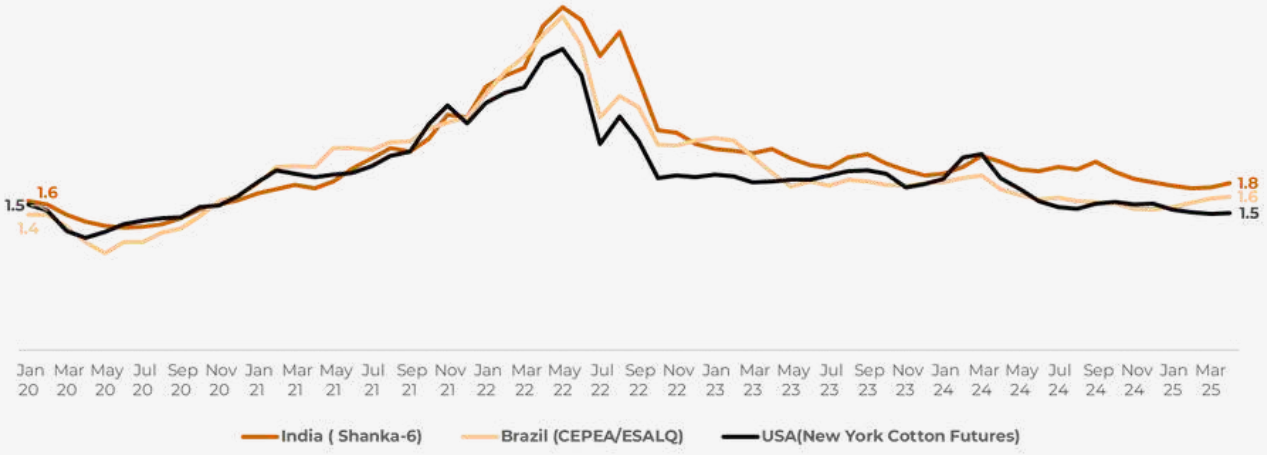
Managing Raw Material Cost: A Strategic Imperative for Profitability

Raw material pricing, particularly cotton - has emerged as a decisive factor in determining the profitability of spinning operations. In recent years, Indian cotton prices have not only been highly volatile but have also outpaced global benchmarks. During 2022, domestic cotton prices surged above those in key exporting nations such as Brazil and the USA, eroding India's historical cost advantage.

Although prices have moderated since 2023, stabilizing between March and June 2024, the gap remains concerning. As of April 2025, Indian cotton was still 9% and 22% more expensive than cotton from Brazil and the USA, respectively, putting further pressure on Indian yarn exporters competing in global markets.

Figure 3: Global Cotton Prices (2020-2025)

USD/Kg of yarn



Source: Emerging textiles & Wazir Analysis

Why Should Spinners Focus on Yarn Realization ?

- **Volatile Cotton Price**: High fluctuations in cotton prices leave spinners with limited control over raw material costs, making operational optimization and strategic sourcing critical for maintaining profitability.
- **Competitive Costs Across Geographies**: Even marginal differences in raw material costs can offer a strategic advantage, underscoring the need for efficient resource utilization and cost control.
- **Narrowing Yarn-Fibre Price Spread Reduces Margins**: The margin between fibre and yarn prices has consistently narrowed. This compresses profitability, requiring spinners to maximize yarn realization.

Yarn Realization: Cornerstone of **Raw Material Optimization,** becomes the critical factor on which the spinners can focus, aiming to gain a long-term market advantage & enhance business resilience.

Levers of Yarn Realization Improvement

- Right Quality of Raw Material
- Compliance with SOPs
- Optimizing Process Parameters
- Machinery Upkeep
- Mitigating Invisible Loss

Right Quality Raw Material: A Path to Profitability

High-performing spinning mills prioritize fibre suitability for the desired yarn count before accepting orders, aligning raw material with quality requirements. In contrast, capacity-driven mills often prioritize volume over fibre compatibility, leading to over or under-spinning, increased waste, and higher costs.

This reactive approach results in inconsistent quality and lower profitability. Strict adherence to fibre standards enables mills to optimize productivity and cost. Transitioning to a structured, quality-first model can significantly enhance operational and financial performance.

Table 2: Recommended Cotton Parameters

Yarn Count	20s	30s	40s	50s	60s	80s
Max. Trash%	5.0%	4.0%	3.5%	3.0%	2.5%	2.0%
Micronaire	3.9 - 4.4	3.5 - 4.1	3.3 - 4.8	3.2 - 3.8	3.0 - 3.6	3.0 - 3.2
Min. Fibre Length (mm)	26 - 28	27 - 29	29 - 31	31 - 33	32 - 34	33 - 35

According to industry SFCn[1] standards, the ideal cotton SFCn should be below 25%. Exceeding this threshold reduces yarn realization by 2-5%.

Waste Generation & Soft Waste Addition in Mixing

Effective management of soft waste is vital in maintaining consistent yarn quality. During spinning, soft waste is inevitably generated, but improper reuse especially exceeding standard limits can degrade yarn quality. It is essential to follow SOPs when reintroducing soft waste in bale form during laydown to ensure uniform blending and performance.

Table 3: Industry Norms for Soft Waste Addition

Yarn Count	Soft Waste%
Fine counts (60 & above)	upto 1.5%
Medium counts (30 – 60)	upto 3.0%
Coarse carded (below 30)	upto 4.0%

[1]SFCn- Short Fibre Content in numbers of < 12.5 mm length

Compliance with Standard Operating Procedures

Every department has defined SOPs critical for maintaining yarn realization, productivity, and quality. Non-compliance leads to inefficiencies, higher costs, and quality issues. Strict adherence to these SOPs is essential for optimized performance and consistent output.

Various SOPs to be Followed in Various Department of Spinning Mill

Mixing

- Mixing bale laydown optimization
- Addition of soft waste within prescribed limit

Blowroom & Carding

- General & maintenance cleaning, checking & maintaining waste generation and other KPIs[1] like trash in card sliver and nep removal efficiency
- Monitoring & attending stoppages of individual card(new norm for card breakages - 0 per day)

Drawframe

- Top roll cleaning and interchange of top rolls every 2 hours
- Scheduled replacement of the top & bottom roll strippers & draw frame end brush lubrication
- Automatic removal of fan waste & maintaining drafting suction standards

Comber

- Top roll cleaning and interchange of top rolls
- Checking & maintaining KPIs like short fibre removal efficiency, comber efficiency, neps per gm at frequent levels

Speedframe

- Monitoring & attending roving breakages

Ringframe

- Monitoring & attending end breaks per 100 spindle hours
- Implement SOPs for critical settings like ring & spindle centring, top roll buffing schedule and work practices (long gaiting and lapeta)

Autoconer

- Daily cuts monitoring
- Alarm bobbin production, repeat cycle, bobbin rejection

Humidification

- Checking & maintaining RH%[2] in dept.
- Checking TDS[3] of water & efficiency of humidification plant

[1]KPI - Key Performance Indicator
[2]RH - Relative Humidity
[3]TDS - Total Dissolved Solids

Optimizing Process Parameters

Standardizing and maintaining optimal process parameters across departments is essential for achieving KPIs. Each department and machine has specific, measurable KPIs that significantly impact yarn realization and overall productivity. Regular monitoring and maintenance of these KPIs are crucial for ensuring consistent performance and identifying areas for improvement.

Table 4: Nep Generation & Removal Efficiency

Section	Nep Generation
Blowroom	Below 100%

	Nep Removal Efficiency
Carding	Above 75%
Comber	Above 90%

Table 5: Cleaning Efficiency: Blowroom and Card

Trash in Cotton%	Blowroom	Carding	Total
5.0 and above	above 60%	above 97%	>98%
3.0 to 4.9	above 55%	above 96%	>98%
1.0 to 2.9	above 50%	above 95%	99%

Table 6: Count-wise Comber Noil Extraction (Indian cotton with standard cotton specifications)

Count	Comber Noil %
20s	10% to 14%
30s	10% to 16%
40s	14% to 18%
60s	18% to 22%
80s	18% to 22%
100s	20% to 22%

Machinery Upkeep: Minimizing Waste and Maximizing Productivity

Neglecting timely replacement of consumables and extending maintenance schedules to reduce labor costs can compromise yarn quality and increase waste generation.

For instance -

Delaying top comb changes by a year might save 1 paisa/kg in costs but can lead to a 0.25% - 1% rise in noil percentage and diminished yarn quality. This will potentially result in losses of up to 150 paise/kg, 150 times the cost of inaction.

Such practices ultimately increase invisible losses and reduce overall productivity. Investing in regular maintenance and adhering to recommended replacement schedules are crucial for sustaining high yarn realization rates and minimizing waste. These proactive measures ensure optimal machine performance, consistent yarn quality, and long-term cost savings.

Table 7: Average Life of Consumables in Carding & Combing

In Tons

Carding	
Carding Machinery Parts	**Average Life (depending upon the type of wire)**
Cylinder Wire	800 - 1,200
Doffer Wire	800 - 1,200
Flat Tops	600 - 800

Combing	
Comber Machinery Parts	**Average Life (depending upon the type of wire)**
Top Comber	500 - 900
Circular Comber	1,200 - 1,800

Mitigating the Invisible Loss

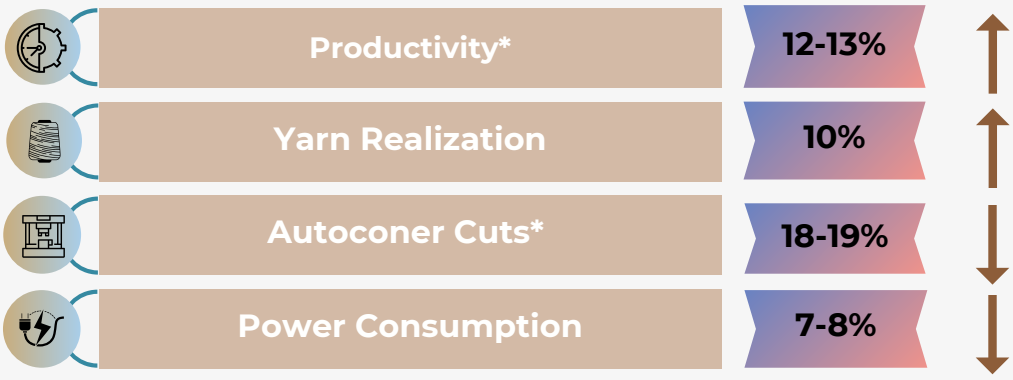
- In standard mill practices, cotton bale moisture content is typically assessed only in the outer layers. However, a comprehensive evaluation including the outer, middle, and inner layer is essential for accurate moisture measurement and quality control.
- Regarding waste management, improper handling of soft waste can lead to excessive fly generation, adversely affecting both working conditions and yarn quality. Excessive and improper way of addition of the soft waste will lead to the high fly generation and contribute to the poor working & invisible loss.

Key Check Points

Case Studies

Case Study 1

- Re-engineering Southern India based **spinning mill having 65,000 spindles** for increasing the productivity and yarn realization with maintaining the yarn quality.



Case Study 2

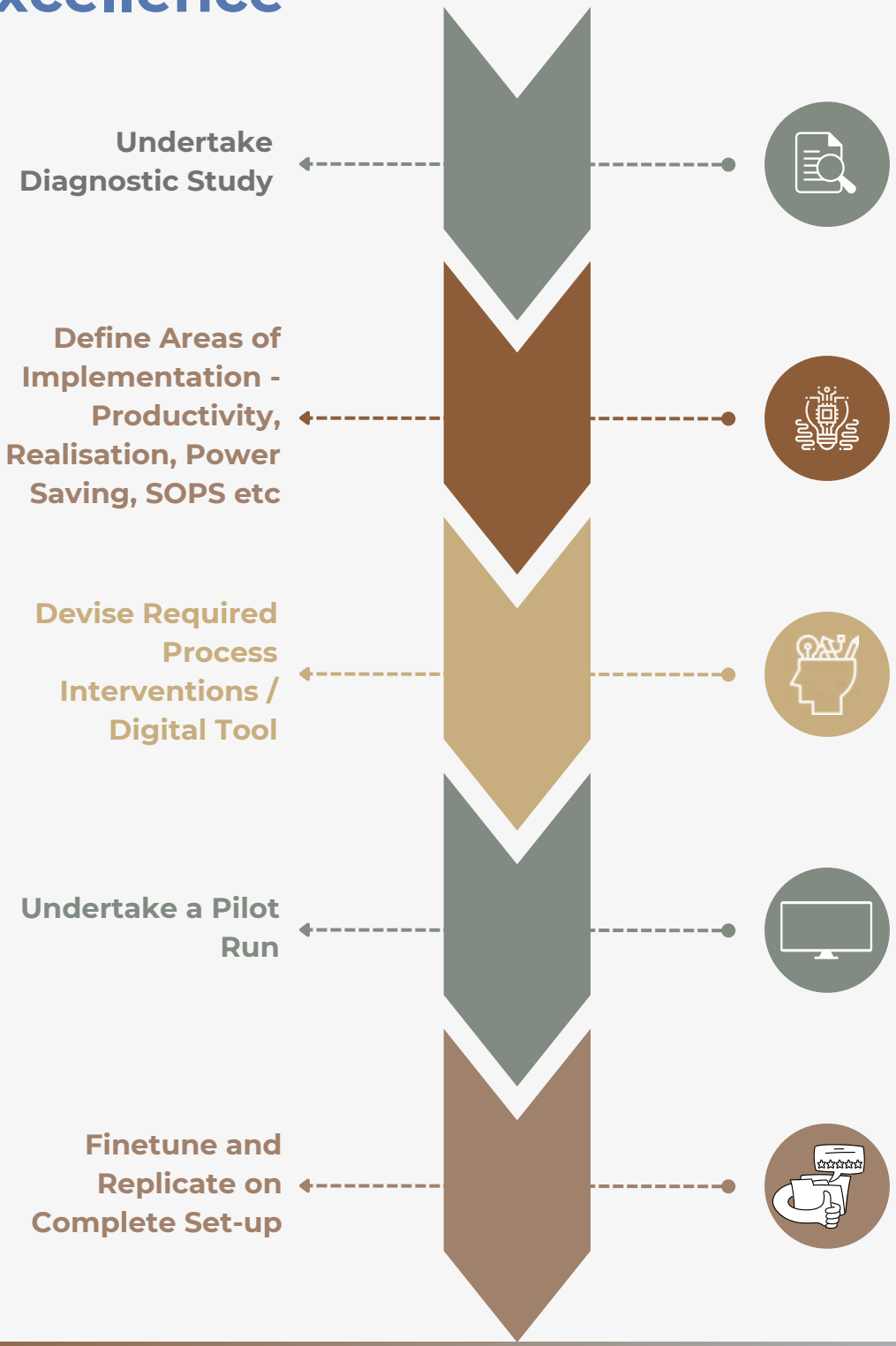
- Re-engineering Central India based **vertically integrated large unit having 4,50,000 spindles** for optimizing cost of manufacturing with improvement in quality & work practices.

Case Study 3

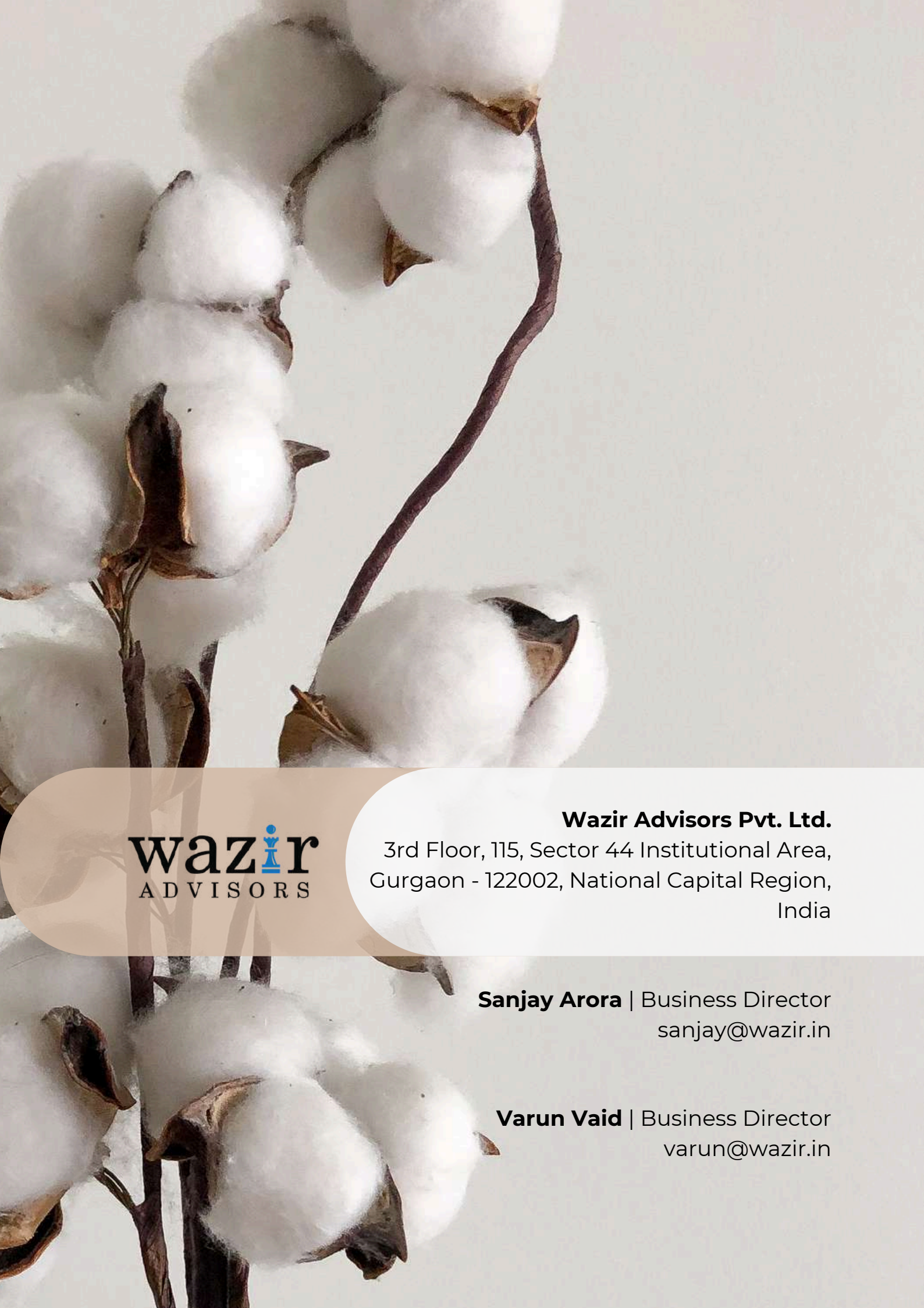
- Process optimization for running Brazilian cotton in a **spinning unit based out of North-West India**, with enhancements in key processes and operational practices.

*For different count

Our Approach for Operational Excellence



We can help you to achieve your goals by assisting in making your unit at par with international benchmarks!



wazir
ADVISORS

Wazir Advisors Pvt. Ltd.
3rd Floor, 115, Sector 44 Institutional Area,
Gurgaon - 122002, National Capital Region,
India

Sanjay Arora | Business Director
sanjay@wazir.in

Varun Vaid | Business Director
varun@wazir.in