

NIIR PROJECT CONSULTANCY SERVICES

NPCS

Industrial Knowledge | Feasibility Expertise | Global Reach

CLIENT SUCCESS CASE STUDY

PROJECT TITLE

Surgical Cotton & Cotton Balls Manufacturing Project

"From Feasibility to Confidence — Powering India's Healthcare Manufacturing Future"

CLIENT

M/s. Pratibha Fabric Limited

Surat, Gujarat, India

INDUSTRY

Healthcare Consumables | Medical Manufacturing | Textile-to-Healthcare Diversification

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About Niir Project Consultancy Services (NPCS)

NPCS is part of Asia's leading industrial knowledge ecosystem with thousands of project profiles and global consulting expertise. Founded over three decades ago, NPCS has established itself as India's premier techno-economic consultancy, serving entrepreneurs, investors, industrial groups, and government bodies across more than 50 countries.

NPCS bridges the gap between investment vision and industrial reality by delivering rigorous feasibility studies, market intelligence, and project execution frameworks. Our multidisciplinary team of engineers, economists, and industry specialists ensures that every recommendation is grounded in real-world data, proven methodology, and deep sector expertise.

Core Services

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| 01 Detailed Project Reports (DPR) Comprehensive investment blueprints covering technical, financial & market dimensions | 02 Techno-Economic Feasibility Studies Scientific evaluation of project viability across technology, cost & profitability axes | 03 Market Research & Analysis Demand assessment, competitive landscape, pricing trends & growth forecasting | 04 Engineering & Process Advisory Plant layout, machinery selection, process optimization & implementation guidance |
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Our Authority in Numbers

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| 30,000+ Detailed Project Reports Published | 50+ Countries Served Globally | 30+ Years Industrial Consulting Expertise | 250,000+ Industrial Projects Delivered |
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With an unparalleled database of industrial project profiles, NPCS empowers investors with the knowledge and confidence needed to make sound manufacturing decisions. Our track record spans sectors including chemicals, food processing, pharmaceuticals, textiles, engineering, and healthcare consumables.

Project Snapshot

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| Client Name | M/s. Pratibha Fabric Limited |
| Location | Surat, Gujarat, India |
| Industry Sector | Healthcare Consumables — Medical Manufacturing |
| Project Recommended | Production of Surgical Cotton and Cotton Balls |
| Consultancy Scope | Techno-Economic Feasibility Study, Market Analysis, Raw Material Assessment, Project Costing, Financial Viability Evaluation, Implementation Planning, Strategic Advisory |
| Implementation Status | Client has reviewed feasibility insights and agreed to proceed with full project implementation |
| NPCS Engagement Type | End-to-End Investment Advisory & Feasibility Consulting |

Client Overview & Investment Objective

M/s. Pratibha Fabric Limited is a Gujarat-based industrial enterprise with established expertise in the fabric and textile sector. Recognizing the limitations of operating within a single industry, the company's leadership sought to strategically diversify its portfolio into a higher-growth, recession-resistant sector.

The client's leadership identified healthcare consumables as an aligned and promising vertical — leveraging existing knowledge in textile processing while entering a sector with strong institutional demand and government policy support. To evaluate this transition rigorously, the company engaged Niir Project Consultancy Services (NPCS) for comprehensive investment advisory.

Client's Key Investment Criteria

- ▶ Consistent and recession-resistant market demand
- ▶ Efficient access to raw materials within the region
- ▶ Moderate capital investment with strong revenue potential
- ▶ Scalable manufacturing operations aligned with long-term growth
- ▶ Opportunities for institutional and healthcare sector supply contracts
- ▶ Compliance with medical industry regulations and quality standards
- ▶ Potential for export market participation

Problem Statement & Investment Challenges

Before engaging NPCS, M/s. Pratibha Fabric Limited faced several critical uncertainties that needed to be resolved before committing capital to a new manufacturing venture:

| Challenge Area | Description |
|--------------------------------|--|
| Market Uncertainty | Insufficient data on demand volumes, buyer segments, and competitive intensity in the medical cotton market |
| Technical Knowledge Gap | No prior experience in surgical cotton processing, bleaching technology, sterilization, and quality certification requirements |
| Financial Risk Exposure | Unclear capital requirements, ROI timelines, and profitability benchmarks for the proposed manufacturing scale |
| Raw Material Complexity | Questions about cotton grade specifications, supplier reliability, pricing volatility, and seasonal availability |
| Regulatory Complexity | Navigating BIS standards, CDSCO requirements, and GMP compliance for medical-grade cotton products |
| Supply Chain Design | No established framework for logistics, packaging, and distribution to institutional healthcare buyers |

Our Approach & Strategy

NPCS deployed a structured five-phase consulting methodology, combining primary industry research, technical assessment, and financial modeling to deliver a bankable feasibility framework for the client.

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| 1 Project Identification Screening 12+ manufacturing opportunities against client criteria to identify the best fit | 2 Market Analysis Quantifying demand, mapping buyer segments & analyzing competitive landscape | 3 Technical Feasibility Evaluating process technology, plant layout, machinery & production capacity | 4 Financial Modeling Detailed cost estimation, ROI projections, IRR analysis & payback calculation | 5 Implementation Strategy Phased roadmap, regulatory guidance & procurement framework |
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Business Opportunity & Market Intelligence

After evaluating multiple industrial opportunities, NPCS identified surgical cotton and cotton balls manufacturing as a high-potential project offering exceptional alignment with the client's capabilities, regional advantages, and investment objectives.

Why Surgical Cotton? The Case for This Project

- ▶ **Essential medical consumable with non-discretionary demand from hospitals, clinics, and pharmacies**
- ▶ Gujarat's position as India's leading cotton-producing state provides immediate raw material proximity advantage
- ▶ Surat's industrial infrastructure, logistics connectivity, and export networks offer significant cost and speed advantages
- ▶ Medical consumables remain demand-resilient during economic downturns — ensuring revenue stability
- ▶ Moderate capital requirements compared to heavy manufacturing sectors, with attractive return potential
- ▶ Scalable from small to large-scale production with relatively linear capex growth
- ▶ Growing export opportunity in Southeast Asia, Africa, and Middle Eastern healthcare markets

Market Demand Drivers

The Indian medical consumables market is undergoing structural expansion driven by multiple converging forces:

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| Healthcare Infrastructure Expansion | India's Ayushman Bharat initiative and state-level hospital expansion programs are adding thousands of new hospital beds annually, each requiring a continuous supply of medical consumables. |
| Rising Hygiene Awareness | Post-pandemic behavioral shifts have permanently elevated consumer demand for wound care, first-aid kits, and personal hygiene products incorporating cotton. |
| Pharmaceutical Sector Growth | India's pharmaceutical manufacturing boom — driven by API export growth — is increasing demand for cotton-based components in drug packaging and testing. |
| Cosmetic & Personal Care Demand | The beauty and personal care market is driving premium cotton ball consumption across salons, clinics, and retail consumers. |

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| Import Substitution Opportunity | A significant share of medical-grade cotton in India is imported. Domestic production aligned with BIS standards can capture this market while benefiting from Make in India incentives. |
| Government Policy Support | PLI schemes, MSME development programs, and healthcare sector investment incentives provide favorable operating conditions for new manufacturers. |

Scope of Consulting Services Delivered

NPCS delivered a comprehensive suite of consulting services designed to answer every critical investment question and provide a clear, actionable path to project implementation.

| Service Area | Deliverable Description |
|---|--|
| Project Identification & Screening | Evaluation of 12+ manufacturing opportunities against client's investment criteria; recommendation of surgical cotton as the optimal fit with detailed justification |
| Market Potential Assessment | Analysis of national and regional demand volumes, buyer segment mapping (hospitals, pharmacies, distributors), competitive landscape, pricing benchmarks, and 5-year demand forecasts |
| Raw Material Availability Analysis | Assessment of cotton grade specifications, supplier ecosystem in Gujarat, pricing trends, seasonal dynamics, and supply chain risk mitigation strategies |
| Technical Feasibility Study | Evaluation of manufacturing process technology, plant layout design, utility requirements, production efficiency benchmarks, and workforce planning |
| Machinery & Equipment Advisory | Identification of key machinery — cotton cleaning, carding, bleaching, drying, ball-forming, sterilization, and packaging equipment — with capacity specifications and vendor guidance |
| Project Cost Estimation | Detailed capital expenditure breakdown covering land, civil construction, plant & machinery, utilities, pre-operative expenses, and contingency provisions |
| Financial Modeling & Viability | Comprehensive financial projections including revenue modeling, cost of production analysis, EBITDA margins, ROI, IRR, NPV, and payback period calculation |
| Implementation Planning | Phased project execution roadmap covering land acquisition, civil works, plant installation, trial runs, regulatory approvals, and commercial production launch |
| Regulatory & Compliance Guidance | Advisory on BIS standards for absorbent cotton, CDSCO licensing, GMP requirements, and quality certification processes |
| Strategic Advisory Support | Ongoing expert consultation throughout the feasibility phase, addressing client queries and refining project parameters based on feedback |

Project Execution Timeline

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| Phase 1 Months 1–2 | Phase 2 Months 2–4 | Phase 3 Months 4–5 | Phase 4 Month 5–6 |
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| <ul style="list-style-type: none">▶ Initial briefing & investment criteria definition▶ Opportunity screening & shortlisting▶ Project selection & approval | <ul style="list-style-type: none">▶ Market research & demand analysis▶ Raw material assessment▶ Technical feasibility evaluation | <ul style="list-style-type: none">▶ Financial modeling & projections▶ Cost estimation & ROI analysis▶ Risk assessment | <ul style="list-style-type: none">▶ Implementation roadmap▶ Regulatory guidance▶ Final report delivery & client decision |
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Technical Insights — Manufacturing Process

The manufacturing of surgical cotton and cotton balls follows a well-established, technically validated process. NPCS assessed each stage for efficiency, quality compliance, and cost optimization. The recommended process flow is as follows:

| Stage | Process Step | Technical Description |
|--------|--------------------------------|--|
| Step 1 | Raw Cotton Procurement | Selection and procurement of high-quality raw cotton from Gujarat suppliers. Cotton grade selection based on fiber length, absorbency, and purity specifications for medical-grade output. |
| Step 2 | Cleaning & Opening | Raw cotton is processed through cleaning machines to remove impurities, seeds, and foreign particles. Mechanical opening loosens fibers for uniform processing. |
| Step 3 | Carding & Lapping | Carding machines align cotton fibers into uniform webs. Lapping equipment creates layered cotton sheets of consistent thickness and weight. |
| Step 4 | Bleaching & Chemical Treatment | Cotton is subjected to controlled bleaching with food-grade hydrogen peroxide or sodium hypochlorite solutions to achieve medical-grade whiteness and absorbency. This stage also removes natural waxes and oils. |
| Step 5 | Washing & Drying | Thorough washing to remove chemical residues. Industrial drying equipment removes moisture to precise levels to meet pharmaceutical standards. |
| Step 6 | Sterilization (Optional) | For sterile surgical cotton, ETO (ethylene oxide) or gamma irradiation sterilization is applied. This stage is governed by strict GMP and regulatory compliance requirements. |
| Step 7 | Cotton Ball Formation | Processed cotton is fed into ball-forming machines that produce uniform cotton balls of specified diameter and weight. Quality checks ensure dimensional consistency. |
| Step 8 | Quality Control Testing | Each batch undergoes laboratory testing for absorbency, fiber purity, weight uniformity, sterility (for sterile grades), and compliance with BIS IS:1440 standards. |
| Step 9 | Packaging & Dispatch | Products are packed in medical-grade packaging (individual sachets, poly bags, or boxes) using semi-automatic or automatic packaging machines. Labeled per regulatory requirements for institutional or retail distribution. |

Key Machinery & Equipment

- ▶ Cotton Cleaning & Opening Machine — Removal of impurities and fiber opening
- ▶ Carding Machine — Fiber alignment and web formation
- ▶ Bleaching Tank & Washing System — Chemical treatment and rinsing

- ▶ Hydro Extractor & Dryer — Moisture removal to pharmaceutical-grade standards
- ▶ Cotton Ball Forming Machine — Automated ball production at specified dimensions
- ▶ Laboratory Testing Equipment — Absorbency, purity, and sterility testing
- ▶ Automatic Packaging Machine — High-speed packaging with label printing
- ▶ ETO Sterilization Chamber (optional) — For sterile surgical cotton grades

Financial & Market Analysis

NPCS conducted a rigorous financial evaluation of the proposed surgical cotton manufacturing project, providing the client with clear visibility into investment requirements, revenue potential, and profitability timelines.

Estimated Investment Outlook

| Investment Component | Coverage |
|-------------------------------|---|
| Land & Factory Infrastructure | Site acquisition, civil construction, and factory setup |
| Plant & Machinery | Cotton processing, bleaching, ball-forming, sterilization & packaging equipment |
| Utilities & Services | Electrical connections, water supply, ETP, compressed air systems |
| Quality Control Lab Setup | Testing equipment, calibration instruments, and laboratory infrastructure |
| Pre-Operative Expenses | Licensing, regulatory approvals, staff recruitment, and training |
| Working Capital | Raw cotton inventory, consumables, packaging material, and operational buffer |
| Contingency Provision | Buffer allocation for cost overruns and unforeseen expenses |

Key Financial Performance Indicators

| Financial Metric | Estimated Range | Benchmark |
|-------------------------------|------------------------------------|--|
| Return on Investment (ROI) | 25% – 35% (Annual) | Strong for medical consumables sector |
| Internal Rate of Return (IRR) | 20% – 28% | Above industry cost of capital |
| Payback Period | 3.5 – 5 Years | Attractive for manufacturing investments |
| EBITDA Margin | 18% – 26% | Healthy operating profitability |
| Plant Capacity Utilization | 60–70% (Year 1–2) → 85%+ (Year 3+) | Ramp-up aligned with market penetration |
| Break-even Point | 55–65% Capacity Utilization | Achievable in Year 2 of operations |

Market Growth Outlook

India's medical cotton market is projected to grow at a CAGR of 8–12% over the next five years, driven by hospital capacity expansion, rising hygiene awareness, and growing pharmaceutical sector demand. Gujarat-based manufacturers benefit from an additional competitive advantage through proximity to raw material supply chains and Surat's robust export infrastructure.

Import substitution represents a significant additional revenue opportunity. A meaningful share of medical-grade cotton consumed in India is currently imported. Manufacturers meeting BIS standards can capture this domestic market while qualifying for government PLI scheme benefits.

Results & Outcomes

The NPCS consulting engagement delivered measurable, multi-dimensional value to M/s. Pratibha Fabric Limited — transforming an investment concept into a well-researched, decision-ready business plan.

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| 100% Investment Decision Clarity Achieved | 9+ Risk Domains Analyzed & Mitigated | 5-Phase Structured Consulting Methodology | Proceed Client Decision: Full Implementation |
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Key Benefits Delivered to Client

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| Investment Clarity | Client gained a comprehensive, data-backed understanding of capital requirements, revenue potential, and profitability — eliminating guesswork from investment decisions. |
| Risk Mitigation | Identification and quantification of key risks across market, technical, financial, and regulatory dimensions — with mitigation strategies embedded in the project plan. |
| Technical Readiness | Detailed process blueprint, machinery specifications, and plant layout guidance enabled the client to plan procurement and vendor engagement with precision. |
| Market Confidence | Evidence-based demand forecasts, competitor analysis, and buyer segment mapping provided the market intelligence needed for sales strategy formulation. |
| Regulatory Preparedness | BIS compliance roadmap and CDSCO licensing guidance ensured no regulatory surprises during plant setup or production launch. |
| Implementation Roadmap | A phase-wise project execution plan with clear milestones, timelines, and coordination requirements enabled structured project management. |
| Strategic Positioning | Identification of export opportunities and import substitution potential positioned the client for long-term competitive advantage. |

Client Testimonial



The feasibility analysis and project insights provided by NPCS were extremely valuable in helping us identify a promising manufacturing opportunity. Their expertise in techno-economic evaluation and project planning gave us the confidence and clarity we needed to proceed with our investment decision. NPCS did not just deliver a report — they delivered a vision for our next industrial venture.

— Management Team, M/s. Pratibha Fabric Limited, Surat, Gujarat

Why Choose NPCS for Your Next Industrial Project?

Niir Project Consultancy Services (NPCS) is not merely a report provider — we are strategic investment partners who bring industrial intelligence, technical depth, and execution clarity to every client engagement.

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|  Proven Industrial Expertise 30+ years across chemicals, food, pharma, textiles, engineering, and healthcare sectors |  Global Market Intelligence Access to international demand trends, pricing benchmarks, and export market insights |  Data-Driven Feasibility All recommendations backed by primary research, industry data, and quantitative modeling |  End-to-End Support From project identification through implementation planning — one partner, complete journey |
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The NPCS Advantage at a Glance

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| Sector Depth | 30,000+ DPRs covering 500+ industry verticals — unmatched reference database for feasibility benchmarking |
| Scientific Methodology | Structured consulting framework combining primary market research, technical assessment, and financial modeling |
| Risk-Focused Advisory | Every feasibility report includes risk identification, quantification, and mitigation strategy — reducing investment exposure |
| Regulatory Navigation | Expert guidance on compliance requirements specific to each industry — licensing, certifications, and standards |
| Customized Solutions | No template reports — every engagement is tailored to the client's specific location, scale, resources, and market |
| Post-Report Support | NPCS provides ongoing strategic advisory support even after final report delivery — partners through execution |
| Global Perspective | Clients in 50+ countries trust NPCS for international expansion, import substitution analysis, and export market entry |
| Speed to Insight | Efficient research and report delivery timelines enable faster investment decisions without compromising quality |

Conclusion

The Pratibha Fabric Limited engagement exemplifies the transformative impact of expert industrial consulting. By partnering with NPCCS, the client moved from investment uncertainty to implementation confidence — backed by rigorous market data, technical clarity, and a bankable financial model.

This case study is one of thousands that demonstrate NPCCS's consistent ability to identify viable manufacturing opportunities, evaluate them with scientific rigor, and guide investors toward well-informed, successful decisions.

Whether you are a first-time entrepreneur, an established industrial group, or an institutional investor — NPCCS provides the industrial intelligence and strategic advisory needed to turn your manufacturing vision into a profitable industrial venture.

READY TO BUILD YOUR NEXT INDUSTRIAL PROJECT?

Partner with Niir Project Consultancy Services (NPCS) to transform your investment idea into a profitable industrial venture.

START YOUR MANUFACTURING VENTURE WITH EXPERT GUIDANCE FROM NPCS

NPCS provides:

- ✓ Detailed Project Reports (DPR)
- ✓ Techno-Economic Feasibility Studies
- ✓ Market Research & Industry Analysis
- ✓ Financial Projections & Project Costing
- ✓ Manufacturing Process Guidance
- ✓ Strategic Industrial Investment Advisory

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