

NIIR PROJECT CONSULTANCY SERVICES

NPCS
CLIENT CASE STUDY

Steel Rebars & TMT Bars Manufacturing Facility

Techno-Economic Feasibility Study & Strategic Advisory

M/s. Octinel Industries Limited | Port Harcourt, Nigeria

Empowering Industrial Growth Through Data-Driven Feasibility

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ABOUT NPCS

Asia's Leading Industrial Knowledge Ecosystem

Niir Project Consultancy Services (NPCS) is a premier industrial consultancy firm specializing in Detailed Project Reports (DPRs), techno-economic feasibility studies, market research, and engineering advisory services. With decades of domain expertise spanning manufacturing, processing, and infrastructure sectors, NPCS has established itself as a trusted partner for entrepreneurs, investors, and industrial groups across the globe.

NPCS is part of Asia's leading industrial knowledge ecosystem with thousands of project profiles and global consulting expertise.

<p>Detailed Project Reports Comprehensive DPRs covering market analysis, manufacturing processes, financial projections, and plant economics.</p>	<p>Techno-Economic Feasibility Rigorous technical and financial assessment of industrial ventures to validate commercial viability.</p>
<p>Market Research & Analysis In-depth demand forecasting, competitive landscape evaluation, and import substitution opportunity mapping.</p>	<p>Engineering Advisory Expert guidance on plant layout design, machinery selection, production process optimization, and implementation planning.</p>

OUR TRACK RECORD

Decades of Industrial Excellence

<p>30,000+ Detailed Project Reports Published</p>	<p>50+ Countries Served Worldwide</p>	<p>40+ Years of Industrial Expertise</p>	<p>250,000+ Industrial Projects Delivered</p>
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From agri-processing to specialty chemicals, from construction materials to advanced manufacturing, NPCS has guided entrepreneurs across every major industrial vertical with actionable, data-driven project intelligence. Our global footprint spans Africa, the Middle East, South Asia, Southeast Asia, and Latin America, positioning us as the consultancy of choice for cross-border industrial ventures.

PROJECT SNAPSHOT

At a Glance

Client Name	M/s. Octinel Industries Limited
Client Location	Port Harcourt, Nigeria
Industry Sector	Steel and Construction Materials Manufacturing
Project Recommended	Manufacturing of Steel Rebars & Thermo Mechanically Treated (TMT) Bars
NPCS Services Engaged	Techno-Economic Feasibility Study, Project Identification, Market & Financial Analysis
Implementation Status	Client approved feasibility study and proceeded to project implementation phase

CLIENT OVERVIEW

Understanding the Investment Vision

M/s. Octinel Industries Limited, headquartered in Port Harcourt, Nigeria, is an industrial enterprise with a strategic interest in large-scale manufacturing. The company approached NPCS with the objective of identifying and evaluating a high-potential manufacturing opportunity that would deliver sustained profitability within the context of Nigeria’s rapidly expanding construction and infrastructure sector.

Core Client Objectives

Objective	Description
Long-Term Profitability	Establish a manufacturing venture with sustained revenue generation potential
Construction Sector Alignment	Capitalize on Nigeria's booming construction and infrastructure development cycle
Operational Sustainability	Ensure technically feasible operations with reliable supply chain access
Regional Infrastructure Growth	Leverage accelerating infrastructure investments across West Africa
Import Substitution	Reduce national dependence on imported steel reinforcement products

PROBLEM STATEMENT & CHALLENGES

Identifying Barriers to Successful Industrial Investment

Establishing a steel rebars and TMT bars manufacturing facility in Nigeria presents a complex set of challenges that require rigorous analysis and strategic planning. NPCS identified the following key challenges during the initial assessment phase:

1**Market Intelligence Gap**

Limited availability of reliable, region-specific market data on steel demand forecasting, competitive landscape, and pricing dynamics in the West African construction materials sector.

2**Technical Complexity**

Steel rolling mill and TMT bar production involve sophisticated metallurgical processes, precision equipment calibration, and stringent quality control protocols that demand expert technical assessment.

3**Capital Investment Risk**

Large-scale steel manufacturing requires significant capital expenditure. Without robust financial modeling, investors face substantial risk of cost overruns and suboptimal return on investment.

4**Supply Chain Vulnerability**

Reliable sourcing of steel billets and scrap steel through regional and global supply chains is critical. Disruptions in raw material availability directly impact production continuity and cost structures.

5**Regulatory & Compliance Landscape**

Navigating industrial licensing, environmental clearances, import regulations, and quality standards across Nigerian and international frameworks requires specialized knowledge and coordination.

OUR APPROACH & STRATEGY

Structured Methodology for Industrial Project Success

NPCS deployed its proven six-phase consultancy framework to guide M/s. Octinel Industries Limited through a comprehensive project planning and evaluation process. Each phase was designed to systematically de-risk the investment decision and build a bankable project blueprint.

1

Project Identification

Evaluated multiple manufacturing opportunities aligned with the client's investment capacity, risk appetite, and strategic objectives. Steel rebars and TMT bars emerged as the optimal choice.

2

Market Analysis

Conducted in-depth regional and global demand analysis for construction steel, covering growth projections, competitive mapping, pricing trends, and import substitution potential.

3

Technical Feasibility

Assessed steel rolling mill technologies, TMT bar production processes, plant infrastructure requirements, quality control protocols, and environmental compliance standards.

4

Financial Modeling

Prepared comprehensive financial projections including total project cost estimation, capital structure advisory, break-even analysis, ROI projections, and working capital assessment.

5

Raw Material Strategy

Evaluated steel billet and scrap steel sourcing channels for sustainable, cost-effective production with supply chain resilience planning.

6

Implementation Roadmap

Developed detailed guidance on plant layout design, equipment procurement, commissioning timelines, workforce planning, and operational launch strategy.

SCOPE OF SERVICES DELIVERED

Comprehensive End-to-End Industrial Consultancy

Service Area	Deliverable Description
Detailed Project Report (DPR)	Complete techno-economic feasibility report with market analysis, manufacturing process documentation, financial projections, and plant economics.
Plant Layout Design	Optimized facility layout planning for production efficiency, material flow, safety compliance, and future capacity expansion.
Machinery Selection	Technical specification and vendor evaluation for steel rolling mills, TMT quenching systems, reheating furnaces, and ancillary production equipment.
Financial Modeling	Investment estimation, capital structure advisory, break-even analysis, ROI/IRR projections, and working capital requirements assessment.
Market Validation	Demand forecasting, competitive landscape analysis, pricing strategy, and import substitution opportunity quantification.
Implementation Roadmap	Phase-wise project execution plan with milestones, procurement schedules, commissioning timelines, and operational readiness benchmarks.

PROJECT EXECUTION TIMELINE

Phase-Wise Implementation Milestones

Phase	Timeline	Milestone	Key Deliverables
Phase 1	Weeks 1-3	Project Identification & Scoping	Client consultation, investment profiling, sector shortlisting
Phase 2	Weeks 4-7	Market Research & Demand Analysis	Regional steel demand assessment, competitive mapping, pricing analysis
Phase 3	Weeks 8-11	Technical Feasibility Study	Rolling mill technology evaluation, plant design, quality standards review
Phase 4	Weeks 12-15	Financial Modeling & DPR Preparation	Cost estimation, financial projections, comprehensive DPR compilation
Phase 5	Weeks 16-18	Client Review & Strategy Finalization	Report presentation, implementation roadmap delivery, advisory support

TECHNICAL INSIGHTS

Manufacturing Process & Key Technologies

The production of steel rebars and TMT bars involves a multi-stage metallurgical and mechanical processing chain. NPCS evaluated the complete manufacturing workflow to ensure technical viability and optimal equipment specification for the proposed facility.

Manufacturing Process Overview

- 1 Raw Material Procurement**
 Sourcing of steel billets or scrap steel from regional and international suppliers
- 2 Reheating Furnace**
 Billets heated to 1,100-1,200 degrees Celsius in a continuous reheating furnace
- 3 Hot Rolling Mill**
 Heated billets passed through roughing, intermediate, and finishing rolling stands
- 4 TMT Quenching**
 Rapid water quenching of the outer surface while the core remains hot, creating a tempered martensite layer
- 5 Cooling Bed**
 Controlled atmospheric cooling on a walking beam cooling bed for uniform temperature normalization
- 6 Cutting & Bundling**
 Bars cut to standard lengths, quality inspected, and bundled for dispatch

Key Machinery & Technologies

Equipment	Function	Specification
Continuous Reheating Furnace	Billet heating to rolling temperature	Walking beam type, natural gas fired
Roughing Mill Stand	Initial size reduction of billets	Two-high reversing mill, 450mm rolls
Intermediate Mill Stands	Progressive cross-section reduction	Continuous mill train, 350mm rolls
Finishing Mill Stands	Final dimensional profiling	Precision stands, 300mm rolls
TMT Quenching Box	Rapid surface quenching for TMT properties	High-pressure water spray system
Walking Beam Cooling Bed	Controlled atmospheric cooling	60-80 meter length, automated
Cold Shear	Precision cutting to standard lengths	Hydraulic shear, up to 12m cuts

FINANCIAL & MARKET ANALYSIS

Investment Outlook and Growth Projections

NPCS conducted a rigorous financial and market analysis to validate the commercial viability of the proposed steel rebars and TMT bars manufacturing facility. The analysis encompassed investment estimation, profitability indicators, demand projections, and import substitution quantification.

Indicative Investment Structure

Component	Description	% of Total
Land & Infrastructure	Plant site, civil works, roads, utilities	18-22%
Plant & Machinery	Rolling mill, furnace, TMT quenching, cooling bed	45-52%
Pre-Operative Expenses	Technical consultancy, licensing, trial runs	5-8%
Working Capital	Raw materials, operating expenses, inventory	15-20%
Contingency & Margin	Unforeseen costs, escalation reserve	5-8%

Key Financial Indicators

Indicator	Benchmark Projection	Assessment
Return on Investment (ROI)	22-28% per annum at full capacity	Strong
Internal Rate of Return (IRR)	18-24%	Attractive
Payback Period	3.5-4.5 years	Favorable
Break-Even Capacity	55-65% of installed capacity	Achievable

Market Demand & Growth Outlook

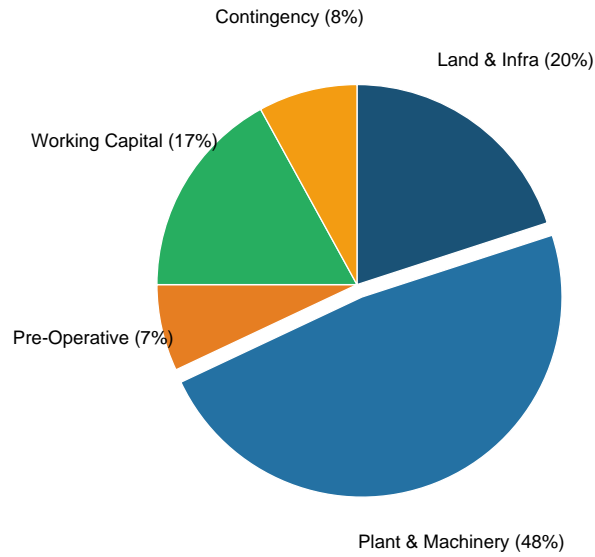
The steel reinforcement market in Nigeria and across West Africa is experiencing robust growth driven by accelerating urbanization, large-scale government infrastructure programs, expanding real estate development, and increasing industrial construction activity. Local manufacturing of TMT bars presents a compelling import substitution opportunity, reducing national dependence on foreign steel products while strengthening domestic supply chain resilience.

Growth Drivers	Import Substitution Factors
<ul style="list-style-type: none"> - Urban housing development boom - Government infrastructure programs - Industrial construction expansion - Transportation projects (bridges, highways) 	<ul style="list-style-type: none"> - High import dependency on steel products - Foreign exchange conservation potential - Logistics cost advantage of local production - Growing policy support for local manufacturing

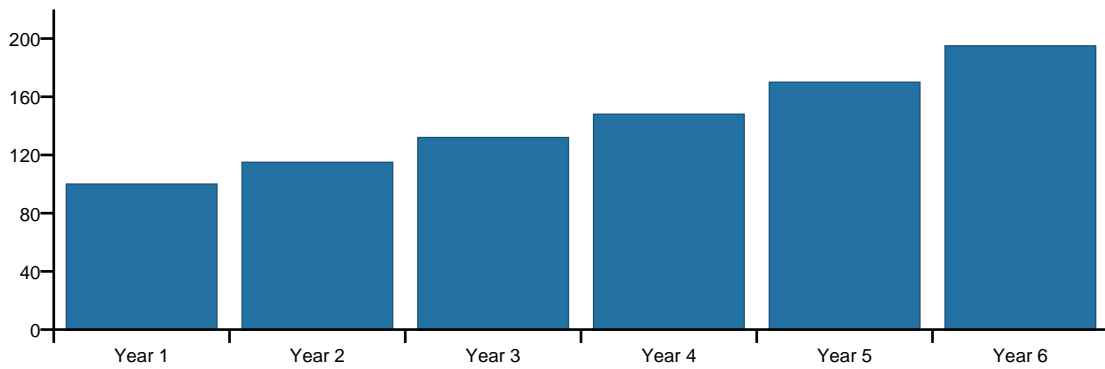
VISUAL ANALYTICS

Data-Driven Project Intelligence

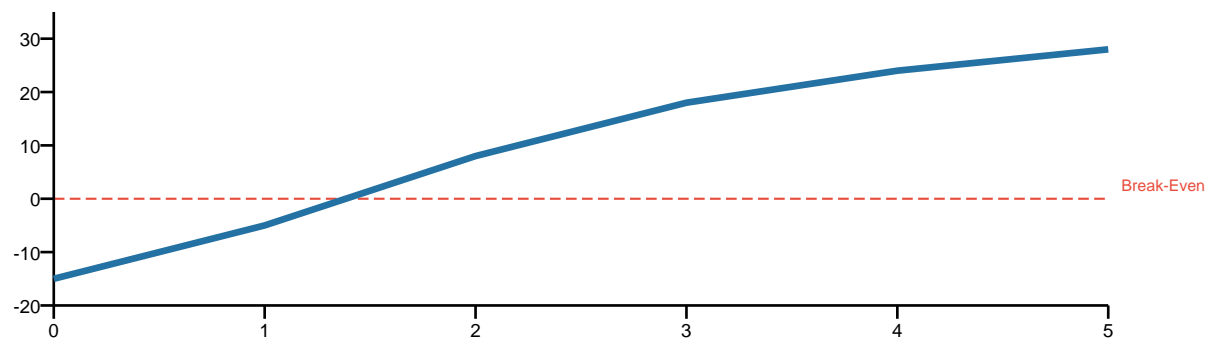
Investment Breakdown



Projected Steel Rebar Demand Growth (Indexed)



Projected Return on Investment Trajectory



RESULTS & OUTCOMES

Measurable Impact and Strategic Value Delivered

Following the comprehensive feasibility analysis and strategic advisory delivered by NPCS, M/s. Octinel Industries Limited gained the clarity and confidence required to commit to the steel rebars and TMT bars manufacturing venture. The engagement produced the following measurable outcomes:

1	Validated Investment Thesis Comprehensive techno-economic analysis confirmed the commercial viability of the proposed manufacturing facility, providing the client with a bankable project blueprint.
2	De-Risked Capital Deployment Detailed financial modeling with break-even analysis, ROI projections, and working capital assessment enabled informed capital allocation decisions.
3	Accelerated Decision-Making The structured feasibility report reduced the client's evaluation timeline, enabling faster progression from concept to implementation planning phase.
4	Technical Confidence Expert assessment of rolling mill technologies, TMT production processes, and equipment specifications provided the client with technical assurance for plant design decisions.
5	Import Substitution Positioning Market analysis quantified the import substitution opportunity, positioning the venture as a contributor to Nigeria's industrial self-reliance and foreign exchange conservation.
6	Strategic Market Entry Competitive landscape mapping and demand forecasting provided a clear market entry strategy aligned with regional construction growth cycles.

CLIENT TESTIMONIAL

Voices of Confidence

"NPCS provided us with an exceptionally thorough feasibility analysis and clear strategic direction for our manufacturing investment. Their professional approach, deep technical expertise, and data-driven methodology helped us evaluate the project with complete confidence. The comprehensive Detailed Project Report served as the foundation for our investment decision, enabling us to move forward with clarity on market potential, technical requirements, and financial projections. We highly recommend NPCS to any entrepreneur or investor seeking world-class industrial consultancy."

— Management Team

M/s. Octinel Industries Limited, Port Harcourt, Nigeria

WHY CHOOSE NPCCS

Your Trusted Partner for Industrial Success

Proven Industrial Expertise

Four decades of hands-on experience across 250,000+ industrial projects spanning every major manufacturing vertical.

Global Market Understanding

Active consulting presence in 50+ countries with deep understanding of regional market dynamics, regulatory frameworks, and investment climates.

Data-Driven Feasibility

Rigorous techno-economic analysis backed by 30,000+ published project reports and proprietary industrial databases.

End-to-End Project Support

Comprehensive consultancy from initial project identification through DPR preparation, financial modeling, and implementation roadmap delivery.

Risk Mitigation Approach

Structured methodology designed to systematically de-risk investment decisions through validated market data, technical assessment, and financial stress testing.

CONCLUSION

Strategic Value and Long-Term Impact

This case study demonstrates how Niir Project Consultancy Services (NPCS) empowers entrepreneurs and investors to identify, evaluate, and pursue profitable industrial manufacturing opportunities through a structured, data-driven consultancy approach.

For M/s. Octinel Industries Limited, the engagement delivered a comprehensive, bankable project blueprint for steel rebars and TMT bars manufacturing — a venture strategically aligned with Nigeria's infrastructure growth trajectory and positioned to capitalize on the import substitution opportunity in West Africa's construction materials sector.

By combining deep market intelligence, rigorous technical assessment, and robust financial modeling, NPCS enables clients to move from investment concept to implementation with confidence, clarity, and significantly reduced risk. A professionally prepared Detailed Project Report remains the cornerstone of successful industrial project planning — and NPCS continues to set the benchmark for quality, depth, and actionability in industrial consultancy worldwide.

READY TO BUILD YOUR NEXT INDUSTRIAL PROJECT?

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

Get in Touch

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