



PRESS PACK • APRIL 2026

The critical bottleneck in India's infrastructure boom

An interview opportunity with **Lalit Surve**

General Manager, TCR Engineering Services Pvt. Ltd.

Transparency. Competence. Reliability.

Contents

This pack carries three documents in the order an editor would read them.

- **Part I. Pitch email.** The one-page offer, as sent.
- **Part II. Editorial briefing.** Background, fast facts, the executive profile and the proposed interview angles.
- **Part III. Feature interview.** The full question-and-answer transcript, with a glossary of the technical terms it uses.

Prepared by TCR Engineering Services Pvt. Ltd., Mahape, Navi Mumbai. Media enquiries: pr@tcrceng.com. No publication is named in this pack; it is issued as a general press document.

Part I. Pitch email

PITCH EMAIL DRAFT

Subject: Exclusive Pitch: The critical bottleneck in India's \$1.4T infrastructure boom

Hi [Editor's Name],

Everyone is talking about India building the world's next great infrastructure and manufacturing base. But nobody is talking about the massive bottleneck: qualifying the materials to build it.

I would like to offer you an exclusive interview with Lalit Surve, General Manager of TCR Engineering, the institution that actually tells the builders of these mega-projects whether their materials will hold. TCR's test reports sit inside the operational files of Saudi Aramco, Shell, ISRO, and India's first bullet train project (Mumbai-Ahmedabad HSR). The company has delivered 15% revenue CAGR and is now deploying AI and robotics to drive margin expansion of 20 basis points.

Lalit is a sharp operator who speaks the language of capital allocators. In an interview, he can offer your readers a unique, boots-on-the-ground financial perspective on:

The "Make in India" Prerequisite: Why materials testing is not a downstream beneficiary of the \$1.4 trillion National Infrastructure Pipeline, but a structural, regulatory prerequisite. Every PLI scheme, every defence corridor, every green hydrogen project requires material qualification before production begins.

The AI Pivot in Heavy Industry: How TCR is deploying AI-Agent-as-a-Service (AGAAS) and robotic inspection systems to transform a 50-year-old testing lab into a high-margin materials intelligence platform. Their Petrobot rover captures 200,000 data points per tank with zero downtime.

The Ageing Asset Boom: The multi-decade, exponential revenue driver of extending the life of India's legacy refineries and power plants. TCR extended a Gujarat refinery's life by 15 years and deferred INR 200 crore in capital replacement for a fertiliser plant.

The Portfolio Moat: How a privately held industrial firm survives and thrives through 50 years of economic cycles by leading the capital investment curve. The proprietary database of 100,000 microstructure records is a half-century asset no competitor can replicate.

To give you a clear sense of Lalit's perspective and the depth of the insights he can offer, I have prepared a comprehensive editorial briefing and Q&A framework, including executive headshots and sample visuals. I would be happy to send it over if you are interested in exploring this narrative for an upcoming feature.

Regards,

Atul Yadav

PR & Media Relations

TCR Engineering Services Pvt. Ltd.

atul@tceng.com | +91-9833530200

tceng.com

Part II. Editorial briefing

COMPREHENSIVE EDITORIAL BRIEFING

The Critical Bottleneck in India's \$1.4 Trillion Infrastructure Boom

An Exclusive Interview Opportunity with Lalit Surve

General Manager, TCR Engineering Services Pvt. Ltd.

Editorial briefing | April 2026

The Editorial Hook

Why this matters to a financial audience right now

The narrative: Everyone is talking about India building the world's next great infrastructure and manufacturing base. The \$1.4 trillion National Infrastructure Pipeline, the PLI schemes in steel and defence, the green hydrogen mission, the semiconductor fabrication ambitions. But nobody is asking the obvious prerequisite question: **who qualifies the materials to build it all?**

You cannot commission a refinery without certifying the welds. You cannot manufacture a defence component without qualifying the raw material. You cannot build India's first bullet train without testing every rebar coupler against both Indian and Japanese Shinkansen specifications. Materials testing is not a downstream beneficiary of India's infrastructure expansion. It is a regulatory prerequisite. And one company has been quietly providing that critical sign-off for over 50 years.

TCR's positioning: TCR Engineering Services is India's leading independent materials testing, NDT, and asset integrity laboratory. Founded in 1973, it is the institution whose test reports sit inside the operational files of Saudi Aramco, Reliance Industries, Shell, DRDO, ISRO, and the Nuclear Power Corporation of India. What makes this a financial story, not just a technical one, is that TCR has delivered **15% revenue CAGR** and is now deploying AI agents and robotic inspection systems (AGAAS) that are expected to deliver **margin expansion of 20 basis points**. This is a 50-year-old lab that is becoming a high-margin materials intelligence platform.

Fast Facts: The Cheat Sheet

50+ Years Operating

5,000+ Global Clients

9+ Countries

15% Revenue CAGR

100K+ Microstructure Records

9,000+ Failure Investigations

1,081 NABL Accredited Items

800+ Engineers & Specialists

Blue-Chip Approvals: Saudi Aramco, SABIC, Shell, Reliance Industries, IOCL, GAIL, DRDO, NPCIL, ISRO, NHRCL (Bullet Train), Godrej Properties, L&T

Awards: NACE Excellent Laboratory Award | ISRO Appreciation for Project ASLV | NADCAP Aerospace Accreditation

Executive Profile: Lalit Surve

Lalit Surve
General
Manager

Lalit Surve is the General Manager of TCR Engineering Services, where he oversees the financial strategy, operational planning, and commercial machinery of India's premier materials intelligence company. Responsible for P&L management and regulatory compliance, Surve has been instrumental in navigating TCR through complex industrial cycles using a disciplined, multi-vertical portfolio approach. He leads the company's long-cycle capital allocation strategy, transforming advanced testing capabilities into high-margin revenue streams. By driving TCR's AI-Agent-as-a-Service (AGAAS) integration, Surve is successfully scaling operations and maximising cost efficiency without proportional headcount growth, ensuring the 50-year-old institution remains an agile, exponential growth engine.

Why Lalit is the right interview: He speaks the language of capital allocators, not just engineers. He can articulate how a privately held industrial firm navigates economic cycles, how AI deployment translates into margin expansion, and how long-cycle capital investment compounds into a moat. He is the operator behind a 15% CAGR growth story with deep technical authority.

Proposed Interview Angles and Key Insights

The following angles are designed for a financial audience. Each includes suggested questions and a preview of the executive perspective to demonstrate depth and newsworthy substance.

Angle 1: The AI Pivot in a Legacy Industry

TCR is deploying AI-Agent-as-a-Service (AGAAS) and robotic inspection systems to transform from a traditional lab into a high-margin materials intelligence platform. Their Petrobot ITIS Rover captures 200,000 data points per tank with zero downtime. AI agents run compliance checks against a 100,000+ microstructure database. The result: 5x cost efficiency, 10x faster turnaround, and expected margin expansion of 20 basis points.

Suggested question: "TCR has deployed AI agents and robotic inspection in a sector that is traditionally manual and slow-moving. How does AGAAS translate into financial performance, and what does margin expansion look like as the model scales?"

"The next generation of materials testing will be built by talented humans working alongside intelligent systems. Not replaced by them. Augmented by them."

Angle 2: The Infrastructure Prerequisite

Every PLI scheme, every defence corridor, every green hydrogen project requires material qualification before production begins. TCR is the testing partner for India's first bullet train (Mumbai-Ahmedabad HSR), has inspected 500+ bridges with robotic NDT, and is the first BIS-accredited lab for rebar coupler testing. Under Mumbai's Clause 77, every building over 30 years old requires a structural audit every three years, creating a regulatory tailwind that is only accelerating.

Suggested question: "India's National Infrastructure Pipeline targets \$1.4 trillion in investment. How does a materials testing laboratory sit inside that macro story, and what is the revenue addressability for a firm like TCR?"

"TCR is not a beneficiary of India's infrastructure boom. We are a prerequisite for it."

Angle 3: The Ageing Asset Boom

India has refineries, fertiliser plants, and power stations commissioned in the 1970s and 1980s whose original design lives have expired. TCR uses API 579 fitness-for-service methodology to extend asset life, deferring massive capital replacements. They extended a Gujarat refinery's life by 15+ years and deferred INR 200 crore in capital replacement for a fertiliser plant. With IOCL operating 11+ refineries and GAIL running thousands of km of gas pipeline, this is a multi-decade, multi-thousand-crore annual addressable market.

Suggested question: "You extended a refinery's life by 15 years and deferred INR 200 crore in replacement for a fertiliser plant. At a macro level, how large is the remaining life assessment market in India, and what is TCR's share of that opportunity?"

"The CFO of that fertiliser plant did not have to book an Asset Retirement Obligation because our engineering report provided the evidence to defer it."

Angle 4: The Portfolio Moat

TCR has survived 50 years of economic cycles by leading the capital investment curve, not following it. They invest 15-20% of operating surplus annually into equipment and capability, even during lean years. The proprietary database of 100,000 microstructure records and 9,000 failure investigations is a half-century asset that no competitor can replicate. The accreditation stack (NABL, BIS, IBR, NADCAP, Saudi Aramco, Shell, DRDO, NPCIL) took decades to assemble.

Suggested question: "India has hundreds of testing laboratories. What prevents a well-funded competitor from replicating TCR's capability, and how does a privately held company sustain 15% CAGR through multiple industrial cycles?"

"100,000 microstructure records. 9,000 failure investigations. That institutional memory is the moat. You cannot buy it. You have to grow it over decades."

Visuals and Media Assets

TCR can provide the visual assets required for a compelling editorial layout. The following are available on request:

Available Media Assets

Executive Headshots	Professional headshots of Lalit Surve (General Manager) and Rohit Bafna (President). High-resolution, editorial-quality.
Laboratory Photography	Exterior and interior photographs of the Navi Mumbai headquarters and testing facility, including OES/ICP chemical analysis lab, CTOD fracture toughness equipment, and creep testing lab.
Robotics / Technology	Action photography and video of the Petrobot ITIS Rover robotic inspection system in operation.
Corporate Video	TCR Engineering Services corporate overview video. YouTube: youtu.be/Tb7FGWhh-h8
Logo Files	TCR Engineering logo in PNG, SVG, and EPS formats (light and dark background versions).

Sample visuals enclosed with this briefing:

Lalit Surve, General Manager (high-res headshot available)

TCR Engineering, Navi Mumbai headquarters (additional facility images available)

Media Contact

Atul Yadav | PR & Media Relations

TCR Engineering Services Pvt. Ltd.

Email: atul@tcreng.com

Phone: +91-9833530200

Website: tcreng.com | LinkedIn: [linkedin.com/company/tcr-engineering](https://www.linkedin.com/company/tcr-engineering)

Transparency. Competence. Reliability.

© 2026 TCR Engineering Services Pvt. Ltd.

Part III. Feature interview

EXCLUSIVE FEATURE INTERVIEW

The Quiet Powerhouse Behind India's Industrial Backbone

An In-Depth Conversation with Lalit Surve

General Manager, TCR Engineering Services Pvt. Ltd.

For publication | April 2026 | Mumbai, India

Lalit Surve, General Manager, TCR Engineering Services

In a sprawling industrial corridor east of Mumbai, behind an unassuming gate in Navi Mumbai, sits a laboratory that has quietly shaped the structural integrity of India's most critical infrastructure for over half a century. TCR Engineering Services does not manufacture turbines, pour concrete, or lay pipeline. It does something arguably more consequential: it tells the people who do those things whether their materials will hold.

Founded in 1973 by V.K. Bafna, a gold medallist metallurgist who returned from North America with two master's degrees and a conviction that India deserved world-class testing infrastructure, TCR has grown from a one-room operation in Bombay Central into a globally accredited institution serving more than 5,000 clients across nine countries. Its test reports sit inside the operational files of Saudi Aramco, Reliance Industries, Shell, DRDO, ISRO, and the Nuclear Power Corporation of India. When a 36-inch cross-country gas pipeline is commissioned, when an ageing refinery column needs a remaining-life verdict, when a rebar coupler in a Mumbai high-rise must meet BIS specifications, TCR is the institution that signs the report.

What makes TCR's story unusual is the convergence of old-world depth and new-world capability. The company is now deploying AI agents and robotic inspection systems alongside its metallurgists, a model it calls **AGAAS (AI-Agent-as-a-Service)**, transforming a half-century testing laboratory into what its leadership describes as a "technology-enabled materials intelligence company." The company has delivered 15% revenue CAGR and expects AI-assisted engagements to expand margins by 20 basis points. This is not your typical legacy business story.

Lalit Surve has been at the operational helm of this institution for years, serving as General Manager and overseeing financial strategy, operational planning, and the commercial engine that translates TCR's deep technical capability into a sustainable, growing enterprise. In this exclusive conversation, Surve opens up about TCR's financial architecture, its alignment with India's infrastructure ambitions, and why the next decade could be the most consequential in the company's history.

Editor's Glossary: Key Technical Terms

This interview references industry-specific accreditations and methods. The table below provides context for a general business audience.

Term	What It Means
NABL ISO 17025	India's national laboratory accreditation. Equivalent to international ISO/IEC 17025 quality standard for testing labs.
ILAC MRA	International Laboratory Accreditation Cooperation. Test reports accepted across 90+ countries without re-testing.
CTOD	Crack Tip Opening Displacement. Measures a material's resistance to crack propagation. Required for offshore pipelines and pressure vessels.
API 579 / FFS	American Petroleum Institute standard for Fitness-for-Service. Determines whether ageing equipment can continue safe operation.
NACE TM0177	Standard test method for evaluating metals for resistance to sulfide stress cracking in sour (H ₂ S-bearing) environments.
NADCAP	National Aerospace and Defence Contractors Accreditation Programme. Highest-tier quality accreditation for aerospace materials testing.
RLA	Remaining Life Assessment. Engineering evaluation to extend operating life of industrial assets beyond original design life.
PMI	Positive Material Identification. Field verification of metal alloy composition using portable analysers.
AGAAS	AI-Agent-as-a-Service. TCR's proprietary model for deploying AI agents alongside human experts in testing and inspection workflows.

Part I: Legacy, Leadership, and Financial Architecture

TCR's survival through five decades of Indian industrial cycles, from the licence raj through liberalisation to today's trillion-dollar infrastructure push, is itself a case study. Surve begins with the structural logic that made that longevity possible.

Q1 TCR Engineering has been operating for over fifty years, which is extraordinary longevity in any sector, let alone one as technically demanding as materials testing and NDT. Most companies of this vintage either consolidate into irrelevance or get acquired. TCR has done neither. As the person managing the financial and operational machinery of this business, what is it about TCR's model that has made it not just survive but remain independently competitive for five decades?

The short answer is that we never built a business around a product cycle. We built it around a permanent need. Materials fail. Corrosion does not take a year off. Fatigue cracks do not wait for a budget cycle. The demand for what we do is structural to the industrial economy itself. That is the foundation.

But longevity is not just about demand. It is about how you capitalise that demand into a self-reinforcing operation. Our founder, the late V.K. Bafna, made a decision very early on that TCR would invest in equipment before the market asked for it. We installed India's first 100-tonne universal tensile testing machine in 1975. We brought the first spectrometer into an Indian private lab in 1980. Those were not safe investments at the time. They were bets on where Indian industry would go. That philosophy of leading the capital curve, rather than following it, is what kept us ahead.

From a financial architecture perspective, what makes TCR resilient is that we are not a single-vertical business. We operate across six service pillars: materials testing, NDT and inspection, asset integrity and remaining life assessment, civil and structural testing, sour gas and corrosion testing, and third-party inspection. Each pillar has its own client base, its own revenue cycle, and its own growth trajectory. When oil and gas capex slows, civil infrastructure accelerates. When domestic demand softens, our GCC operations in Saudi Arabia and Kuwait pick up. The portfolio effect is what keeps our financial model stable. Over the past several years, that model has delivered a 15% revenue CAGR.

"We never built a business around a product cycle. We built it around a permanent need. Materials fail. Corrosion does not take a year off."

Q2 You mentioned the capital curve. TCR is privately held, which means every rupee of capital investment comes from internal accruals or the promoter's conviction. In a business that requires continuous equipment upgrades, NABL re-accreditation cycles, and geographic expansion, how do you think about capital allocation?

Capital allocation in a testing laboratory is very different from, say, a manufacturing company. Our capex is not about building production lines. It is about building credibility. Every piece of equipment we buy is a new capability that opens a new revenue stream and, more importantly, a new client approval. When we invested in CTOD fracture toughness testing capability, very few labs in Asia could do it. That single investment opened doors to Shell, to EIL, to every major pipeline project that required fracture mechanics data. The return on that capital was not just financial. It was reputational.

We follow a discipline where roughly 15 to 20 percent of our operating surplus is reinvested into equipment and capability expansion every year. That has been consistent. We do not defer equipment investment during lean years because that is precisely when your competitors stop investing, and that is when the gap widens.

The NADCAP accreditation we recently achieved is a perfect example. That is aerospace-grade accreditation. The investment in getting there, in terms of process upgrades, documentation, and audit preparation, was significant. But it opens an entirely new market: aerospace and defence materials testing, which is growing at over 15 percent annually in India. The capital was committed years before the first revenue will materialise. That is the kind of long-cycle capital allocation that a private, promoter-led company can execute, and a quarterly-earnings-driven entity struggles with.

Q3 Let us talk about the competitive landscape. India has hundreds of testing laboratories. What is TCR's moat? What prevents a well-funded competitor from replicating your capability?

I will give you a number that answers that question: 100,000. That is the number of microstructure records in our proprietary database, built over 50 years. When a metallurgist at TCR examines a failure, they are not starting from theory. They are comparing what they see under the microscope against a library of 100,000 prior observations. That pattern recognition capability is not something you can buy. It is not something you can build in five years or even fifteen. It is a half-century asset.

Then there is the failure analysis record. Over 9,000 failure investigations completed. Each one documented, catalogued, and cross-referenced. When a client comes to us with a cracked heat exchanger tube, we can often identify the failure mode within hours because we have seen that exact metallurgical signature before, possibly from the same alloy family, the same operating environment, the same corrosion mechanism. That institutional memory is the moat.

"100,000 microstructure records. 9,000 failure investigations. That institutional memory is the moat. You cannot buy it. You have to grow it over decades."

Beyond the database, there is the human capital. We have metallurgists and NDT specialists with 20 to 40 years of service at TCR. These are people who have personally inspected Saudi Aramco facilities, signed reports for NPCIL nuclear installations, and qualified materials for ISRO space programmes. You cannot recruit that depth. You have to grow it organically over decades.

And then there is the accreditation stack. NABL ISO 17025, BIS, IBR, NADCAP, Saudi Aramco approval, Shell approval, DRDO approval, NPCIL approval. Each one of those approvals took years to earn and requires continuous compliance to maintain. A new entrant would need a decade just to assemble that credential set, assuming they could pass the audits.

Part II: India's Growth Story and TCR's Strategic Alignment

The conversation shifts from TCR's internal resilience to its external positioning. India's infrastructure and manufacturing ambitions are accelerating across defence, energy, and urbanisation. Surve makes the case that materials testing is not a downstream beneficiary of this expansion but a structural prerequisite.

Q4 India is in the middle of what many economists are calling a once-in-a-generation infrastructure and manufacturing expansion. The Make in India mandate, the PLI schemes, the National Infrastructure Pipeline, Vision 2047. Where does a materials testing laboratory sit in that macro story? And how is TCR positioning itself to capture that tailwind?

Let me reframe the question slightly, because I think the positioning is more fundamental than people realise. Every single initiative you just mentioned, every PLI scheme in steel, every defence corridor, every green hydrogen project, every semiconductor fabrication facility, all of them require one thing before a single unit of production begins: material qualification. You cannot manufacture a defence component without qualifying the raw material. You cannot commission a refinery without certifying the welds. You cannot build a bridge without testing the rebar. TCR is not a beneficiary of India's infrastructure boom. We are a prerequisite for it.

Look at the numbers. India's National Infrastructure Pipeline targets USD 1.4 trillion in infrastructure investment by 2025, and that target has been revised upward. The defence production target is USD 25 billion by 2025 with a one-third export mandate. The green hydrogen mission targets 5 million tonnes of annual production by 2030. Every one of those programmes generates testing demand at the material qualification stage, at the construction stage, at the in-service inspection stage, and at the end-of-life assessment stage. The testing demand is not a one-time event. It is a lifecycle companion to the asset.

We have consciously aligned our capability expansion with these national priorities. Our NADCAP accreditation positions us for aerospace and defence materials. Our sour gas testing capability, which won the NACE Excellent Laboratory Award, positions us for oil and gas and green hydrogen, which involves high-pressure hydrogen environments that create embrittlement risks very similar to H₂S. Our civil testing division is directly plugged into the urbanisation story. And our asset integrity practice, particularly remaining life assessment and fitness for service, addresses the enormous installed base of ageing industrial assets that India must keep running while it builds the new ones.

"TCR is not a beneficiary of India's infrastructure boom. We are a prerequisite for it."

Q5 You raised the ageing asset base. India has refineries, fertiliser plants, power stations, and petrochemical complexes that were commissioned in the 1970s and 1980s. The original design life on many of these assets has expired or is expiring. What does that mean for TCR?

It means a structural, multi-decade demand driver. And I want to be precise about why.

When an industrial asset reaches the end of its original design life, the operator has three choices. One, decommission and replace it, which involves enormous capital expenditure and downtime. Two, keep running it without assessment, which is reckless and, increasingly, illegal under Indian regulatory frameworks. Three, conduct a rigorous remaining life assessment using API 579 fitness-for-service methodology, quantify the actual degradation, and extend the asset's operating life with engineering justification. Option three is what we do.

We completed an RLA engagement for a Gujarat refinery where we extended the asset life by more than 15 years. We performed a fitness-for-service assessment for a fertiliser plant that deferred INR 200 crore in capital replacement. These are not theoretical savings. They are balance sheet events for our clients. The CFO of that fertiliser plant did not have to book an Asset Retirement Obligation because our engineering report provided the evidence to defer it.

Now multiply that across India's installed industrial base. IOCL alone operates over 11 refineries. GAIL operates thousands of kilometres of gas pipeline. NTPC operates dozens of thermal power stations. The Remaining Life Assessment market in India is conservatively a multi-thousand-crore annual opportunity, and it is growing because every year more assets cross the design-life threshold.

Part III: Urbanisation, Civil Infrastructure, and Mega-Projects

From ageing heavy industry to new-build urbanisation: Surve turns to TCR's fastest-growing vertical, civil and structural testing, where regulatory mandates and mega-projects are creating compounding demand.

Q6 Let us shift to the civil infrastructure story. India is urbanising at a staggering pace. Mumbai alone reportedly has over 30,000 buildings that are more than 30 years old, each requiring periodic structural audits. TCR has positioned itself aggressively in this space. Walk me through the opportunity and how you are capturing it.

Civil testing is our fastest-growing vertical, and the regulatory tailwind is powerful. Under Mumbai's building bye-laws, specifically Clause 77, every building between 15 and 30 years old requires a structural audit every five years, and every building over 30 years old requires one every three years. That is not a guideline. It is a legal mandate. And Mumbai is just one city. This regulatory framework is being adopted across Maharashtra and is influencing policy in other states.

We won a three-year civil testing rate contract from Godrej Properties covering all their Mumbai Zone residential projects. We hold long-term contracts with Kalpataru, Shapoorji Pallonji, and Rustomjee, three of India's largest real estate developers. We are approved by BMC, CIDCO, MMRDA, and NHSRCL. And we are the first BIS-accredited commercial laboratory in India for IS 16172 rebar coupler testing across all diameters, which is critical for high-rise construction where rebar mechanical splicing is the standard.

On the mega-project side, we are a testing partner for the Mumbai-Ahmedabad High Speed Rail corridor, India's first bullet train project. We have inspected over 500 bridges across Maharashtra using robotic NDT for the Public Works Department. We have done structural work at Antilia and Wankhede Stadium. The civil vertical is not a side business for us. It is becoming a core revenue pillar.

Q7 The high-speed rail project is interesting. That is a nationally strategic infrastructure programme with Japanese technical collaboration. What specifically does TCR do on a project of that scale?

On a project like the Mumbai-Ahmedabad HSR, the testing requirements span the entire materials spectrum. You have structural steel qualification, rebar and coupler testing for viaducts and elevated sections, weld qualification

for steel superstructures, concrete testing for the alignment, NDT on critical joints, and material certification that must meet both Indian standards and the Japanese Shinkansen specifications, which are among the most demanding in the world.

Our role is to provide NABL-accredited, ILAC-recognised test reports that satisfy both the Indian regulatory requirements and the international standards specified by JICA and the Japanese technical partners. Because our reports carry ILAC MRA recognition, they are accepted across 90-plus signatory countries without re-testing. That eliminates a massive bottleneck for projects with international technical oversight.

This is where TCR's accreditation stack becomes a genuine competitive advantage. A lab that only has domestic accreditation cannot serve a project with international technical specifications. We can, because we have spent decades building that credential architecture.

"A lab that only has domestic accreditation cannot serve a project with international technical specifications. We can, because we have spent decades building that credential architecture."

Part IV: Technology, Global Operations, and the Growth Thesis

The final section marks a tonal shift. From legacy and regulation, the conversation moves to technology, AI, and global ambition. What follows positions TCR not as a traditional lab but as an emerging materials intelligence platform.

Q8 TCR has been investing in AI and robotics, which is unusual for a traditional testing laboratory. You have deployed robotic tank inspection systems, AI-assisted RT film digitalization, and what you call AI Skill Agents internally. This is not what investors typically expect from a materials testing firm. What is the strategic logic?

The strategic logic is straightforward: the next generation of materials testing and NDT will be built by talented humans working alongside intelligent systems. Not replaced by them. Augmented by them. We call this vision AGAAS, which stands for AI-Agent-as-a-Service.

Let me give you concrete examples. Our Petrobot ITIS Rover is an ATEX-certified robotic system that performs internal inspection of in-service storage tanks. It captures 200,000 data points per tank. Zero downtime for the client. No confined space entry for our personnel. The safety case alone justifies the investment, but the data quality is transformative. A human inspector with UT equipment might cover 10 to 15 percent of a tank floor in a typical inspection window. The robot covers 100 percent. That is not a marginal improvement. That is a categorical change in inspection coverage.

On the AI side, our agents run compliance-level checks against our 100,000-plus microstructure database. They cross-reference NDT scan data for anomaly patterns. They automate LIMS triage so that customer response times drop from days to hours. They flag discrepancies in RT film digitalization. The human metallurgist still signs every report. But the AI has already done the first-pass analysis, identified the relevant comparators from our historical database, and highlighted anything that deviates from expected patterns.

The financial case is compelling: 5x cost efficiency, 10x faster turnaround, 1,000x more data captured per engagement. We expect AI-assisted engagements to deliver margin expansion of 20 basis points as the model scales. For our clients, that translates directly into lower inspection costs, faster turnarounds, and better asset intelligence. For TCR, it means higher margins per engagement and the ability to scale without proportional headcount growth.

“The next generation of materials testing will be built by talented humans working alongside intelligent systems. Not replaced by them. Augmented by them.”

Q9 Let us talk about the international business. TCR Arabia has been operating out of Dammam since 2007. You have Saudi Aramco and SABIC approvals, which are notoriously difficult to earn. How material is the GCC business to TCR’s overall trajectory, and what is the expansion plan?

The GCC is strategically critical, not just as a revenue contributor but as a credibility multiplier. When you tell a prospective client anywhere in the world that Saudi Aramco and SABIC have approved your operations, the conversation changes. Those are the two most technically demanding qualification processes in the private sector globally. Earning them required years of investment, multiple audits, and zero tolerance for non-conformance.

TCR Arabia has delivered PMI services on over 700 projects across Saudi Arabia, Kuwait, and the UAE. Our team inspected the Grand Mosque expansion project in Mecca, which I believe is the highest-trust engagement any inspection company could receive. We have presented at Saudi Aramco’s GO Inspection Forum, at NACE Jubail, at SABIC’s STM conferences, and at HADEED’s Reliability Campaigns.

From an expansion perspective, the GCC is undergoing its own industrial transformation. Saudi Vision 2030 is driving massive investment in downstream petrochemicals, in NEOM, in green hydrogen, and in infrastructure. The testing demand in the Kingdom will grow significantly over the next decade. We are positioned to capture that because we are already inside the approval ecosystem. For a new entrant, getting Saudi Aramco approval alone takes three to five years. We have had it since 2007.

We are also evaluating entry into additional GCC markets where our existing client relationships create a natural pull. The ILAC recognition of our reports means we can serve multinational EPCs across the Gulf without local re-accreditation, which is a significant structural advantage.

Q10 Final question, and I want you to think about this from the perspective of someone evaluating TCR as a long-term growth story. You have 50 years of legacy, a proprietary data moat, national-scale demand drivers, an international footprint, and a technology roadmap. What is the TCR of 2035? What does the next decade look like?

The TCR of 2035 is a technology-enabled materials intelligence company with a laboratory at its core.

Let me unpack that. The laboratory does not go away. Physical testing, metallurgical examination, NDT, these are non-negotiable requirements in every industrial jurisdiction on earth. But the way we deliver those services, the speed, the data richness, the predictive capability, that evolves dramatically. The AGAAS model scales. The microstructure database becomes an AI-searchable knowledge graph. The robotic inspection fleet covers tanks, pipelines, bridges, and offshore structures. The human experts focus on the highest-judgement work: failure analysis, fitness-for-service assessments, root cause investigations, expert witness testimony.

Geographically, we see TCR operating across 12 to 15 countries within the decade. The GCC expansion deepens. Southeast Asia opens up. Africa, where Indian infrastructure companies are increasingly active, becomes a natural adjacency.

From a vertical perspective, three areas will drive disproportionate growth. First, aerospace and defence materials testing, enabled by NADCAP. Second, green energy materials qualification, particularly hydrogen embrittlement and high-temperature corrosion for green ammonia and green hydrogen projects. Third, digital asset integrity services through AiOM, our real-time asset monitoring platform.

The revenue trajectory is exponential, not linear, because each new capability we add opens access to multiple client segments simultaneously. NADCAP does not just give us one aerospace client. It gives us access to every aerospace OEM and Tier 1 supplier that requires NADCAP-accredited test data. That is how compounding works in a credentialed business.

What makes me most confident about the next decade is that the demand drivers are structural and secular. India will build more infrastructure. The world will need more energy transition materials. Ageing assets will need more life extension. And every one of those trends requires a trusted, accredited, technically deep testing partner. That is TCR. That has been TCR for 50 years. And that will be TCR for the next 50.

“The TCR of 2035 is a technology-enabled materials intelligence company with a laboratory at its core. The revenue trajectory is exponential, not linear.”

Editor’s Note: TCR Engineering Services Pvt. Ltd. is headquartered in Navi Mumbai, India, with operations across India, Saudi Arabia, Kuwait, the UAE, and multiple international markets. The company is NABL ISO 17025:2017 accredited (Certificate TC-6905), NADCAP approved, and holds client approvals from Saudi Aramco, Shell, Reliance Industries, DRDO, NPCIL, and over 5,000 organisations worldwide. For more information, visit tcrceng.com

--- END OF INTERVIEW ---

PRESS KIT 2026

TCR Engineering Services Pvt. Ltd.

Materials Testing | NDT & Inspection | Asset Integrity | Failure Analysis

Since 1973 | Navi Mumbai, India | 9 Countries

Company Overview

TCR Engineering Services is India’s leading independent materials testing, non-destructive testing, failure analysis, and asset integrity services company. What began as a one-room laboratory in Bombay Central in 1973 has evolved into a multi-country, technology-enabled materials intelligence platform serving the backbone of India’s industrial economy and, increasingly, the energy transition.

The company’s founder, V.K. Bafna, was a gold medallist metallurgist who returned from North America with two master’s degrees and a conviction that India deserved testing infrastructure that met global standards. Five decades later, TCR operates from its Navi Mumbai headquarters alongside offices in Vadodara (TCR Advanced Engineering), Bhubaneswar, and Gorakhpur, with international operations through TCR Arabia (Dammam, KSA) and project deployments across Kuwait, UAE, Oman, Qatar, Nepal, and additional markets.

Today, TCR deploys AI agents and robotic inspection systems alongside its metallurgists through **AGAAS (AI-Agent-as-a-Service)**, delivering 5x cost efficiency, 10x faster turnaround, and 1,000x more data captured per engagement. The company has achieved 15% revenue CAGR and expects AI-assisted engagements to deliver margin expansion of 20 basis points.

Key Facts at a Glance

50+ Years Operating

5,000+ Global Clients

800+ Engineers & Specialists

9+ Countries

Six Service Pillars

1. Materials Testing and Failure Analysis

Mechanical testing (tensile, hardness, impact, bend), elevated temperature testing, creep and stress rupture, CTOD fracture toughness, fatigue testing (LCF/HCF), chemical analysis (OES, XRF, ICP), metallographic examination, polymer and composite testing. 100,000+ microstructure database. 9,000+ failure investigations completed. NADCAP approved for aerospace-grade testing.

In practice: TCR's metallurgists identify failure modes within hours by matching against 100,000 microstructure records, a library no competitor can replicate.

2. Non-Destructive Testing and Inspection

TOFD, Phased Array UT, Radiographic Testing (conventional and digital), MFL, Eddy Current, IRIS, RFET, Helium Leak Detection, High-Temperature Inspection, Cathodic Protection assessment. Robotic inspection systems. Saudi Aramco-approved RT Crawler. 84+ cross-country pipeline RT projects.

In practice: The Petrobot ITIS Rover captures 200,000 data points per tank with zero downtime, covering 100% of the tank floor versus 10-15% from manual inspection.

3. Asset Integrity and Remaining Life Assessment

Fitness for Service per API 579/ASME FFS-1, Remaining Life Assessment, Risk-Based Inspection (RBI), Engineering Critical Assessment (ECA), Root Cause Failure Analysis, Boiler and Reformer Tube RLA, Stress Analysis by XRD. AiOM real-time monitoring platform.

In practice: Extended a Gujarat refinery's asset life by 15+ years. A fitness-for-service assessment for a fertiliser plant deferred INR 200 crore in capital replacement.

4. Sour Gas and Corrosion Testing

NACE TM0177 (SSC), NACE TM0284 (HIC), SOHIC evaluation. NACE Excellent Laboratory Award recipient. Shell approved. Approved by 6 GCC oil majors.

In practice: Sour gas capability positions TCR for the emerging green hydrogen market, where high-pressure hydrogen creates embrittlement risks analogous to H₂S.

5. Civil and Structural Testing

Structural audits under Bye-Law Clause 77, rebar and coupler testing (IS 16172, first BIS-accredited lab), concrete testing, bridge inspection using robotic NDT. BMC, CIDCO, MMRDA, NHRCL approved. 500+ bridges inspected. Testing partner for Mumbai-Ahmedabad HSR.

In practice: Won three-year rate contract from Godrej Properties covering all Mumbai Zone residential projects. Testing partner for India's first bullet train corridor.

6. Third-Party Inspection and Quality Assurance

Pre-shipment inspection, vendor qualification, factory surveillance, turnaround/shutdown inspection. API 510/570/653 certified inspectors. NDT Level III across all methods. 24-hour deployment. 1,000+ turnaround engagements.

In practice: TCR Arabia has delivered PMI services on 700+ projects across KSA, Kuwait, and UAE, including the Grand Mosque expansion in Mecca.

Accreditations and Client Approvals

Accreditations: NABL ISO 17025:2017 (Certificate TC-6905, 1,081 line items), BIS, IBR, NADCAP, ILAC MRA (90+ countries)

Major Client Approvals: Saudi Aramco, SABIC, Shell, Reliance Industries, IOCL, GAIL, HPCL, L&T, DRDO, NPCIL, ISRO, EIL, Tata Power, NTPC, Godrej Properties, Kalpataru, Shapoorji Pallonji, Rustomjee, QAFCO, QChem, KNPC, PDO, BMC, CIDCO, MMRDA, NHSRCL

Awards: NACE International India Chapter, Excellent Laboratory in the Private Sector. ISRO Appreciation for Project ASLV.

Leadership

V.K. Bafna (1940-2013), Founder. Gold medallist metallurgist. M.Eng (University of Toronto), M.S. Industrial Management (Clarkson College). Installed India's first 100T tensile machine (1975) and first spectrometer in a private lab (1980).

Neelam Bafna, Co-Founder. Continued the founder's legacy and operational vision after V.K. Bafna's passing in 2013.

Rohit Bafna, President. Leads strategic direction, international expansion, digital transformation, and the AGAAS vision.

Lalit Surve, General Manager. Oversees financial strategy, operational planning, P&L management, regulatory compliance, and growth across all verticals.

TCR Arabia Company Limited

Location: Gas Gardens, King Abdulaziz Seaport Facility, Dammam, KSA

Established: 2007 | Managing Director: Aref K. Al-Dabal

Approvals: Saudi Aramco (Vendor No. 10040677), SABIC, HADEED

Media Assets

High-resolution media assets are available for editorial use. Contact the media liaison below to request access to a shared drive folder.

Available: Professional headshots of Lalit Surve (General Manager) and Rohit Bafna (President); exterior and interior photographs of the Navi Mumbai headquarters and laboratory; action photography of the Petrobot ITIS

Rover robotic inspection system; TCR logo in PNG, SVG, and EPS formats; corporate video (YouTube: youtu.be/Tb7FGWhh-h8).

To request access: Email Atul Yadav at atul@tc reng.com with subject line “Media Asset Request, [Publication Name]”.

Boilerplate (For Publication)

TCR Engineering Services Pvt. Ltd. is India’s leading independent materials testing, non-destructive testing (NDT), failure analysis, and asset integrity services company. Founded in 1973, TCR operates from Navi Mumbai with offices across India and the GCC, serving over 5,000 clients worldwide in oil and gas, petrochemicals, power, civil infrastructure, aerospace, defence, and nuclear sectors. NABL ISO 17025 accredited with 1,081 line items, NADCAP approved, and holding client approvals from Saudi Aramco, Shell, DRDO, NPCIL, and ISRO, TCR’s test reports are accepted in 90+ countries under the ILAC MRA framework. For more information, visit tc reng.com.

Media Contact

Media Liaison: Atul Yadav

Company: TCR Engineering Services Pvt. Ltd.

Email: atul@tc reng.com

Phone: +91-9833530200

Website: tc reng.com

LinkedIn: linkedin.com/company/tcr-engineering

Address: VKB House, EL-182, MIDC-TTC, Electronic Zone, Mahape, Navi Mumbai, Maharashtra 400710, India

Transparency. Competence. Reliability.

© 2026 TCR Engineering Services Pvt. Ltd. All rights reserved.