



LESSONS FROM GEMBA

I N D I A N	Setting the Tone
	Safety needs a culture change
	Innovation at Scale and Pace
	Value creation on Shop Floors
	Affinity for Communities : Multiplying impact.
	Overflowing Values & Inspiration – Centre of Excellence
	Digital Twin in full view
	Digital Transformation
	Building Future readiness thru' People
	Reflections – What messages are we taking back?
I	Next Steps
	Thank you, Tata Steel

The INDIAN FOUNDATION FOR QUALITY MANAGEMENT (IFQM), with a purpose to enhance Prosperity and Quality of Life for all, is seeking to be a catalyst for Indian businesses to become globally respected. One of the practical means to do that is to learn the principles that drive successful companies and replicate them wherever necessary. As a part of this learning intervention, the Governing Council members, and representatives from member companies of IFQM visited TATA STEEL (JSR) during 4-5 Jan 2024. This document illustrates some of the key lessons and impressions deriving from the visit.

SETTING THE TONE

TATA STEEL

The Big Picture

Be a Global Steel Industry Benchmark in Value Creation and Corporate Citizenship.

- 116 years in existence owing to its Purpose and Learning.
- Linkages of the Company to the spirit of a self-reliant India.
- Nonlinear growth in Capacity - 10X in 20 years (3 to 32 MT).
- Inorganic growth multiplies Transformation challenges.
- TSL moves more materials than most logistics companies.
- TSL sells quality steel at less than most vegetable prices/kg.
- EVA positive despite large scale investments.
- A century of Industrial harmony, a unique record.
- Quality awards: Deming Grand Prize, JRDQV Award, PM's Trophy for best integrated Steel plant (thirteen times).
- TSL seeks to be a Digital leader in the steel industry by 2025.
- Committed to Net zero state by 2045.

Tall Aspirations. Organizations need to aspire for goals that delight all stakeholders. Tata Steel has immensely benefited from pursuing its vision.

India is a Growth Story.

Conducive policy push, Growing markets, Quality consciousness, Disposable incomes and a World-class Digital eco-system are making it a great opportunity.

Building Resilience.

Geopolitical upheavals & changing goalposts demand resoluteness. Future readiness is all about pursuing leadership Financially, Structurally and Culturally.

Sustainability is an existential subject. A greener planet deserves tech innovations and sustainability practices to abate climate change.

Customer Obsession

Today's Customers value quality, brand, and convenience. Our leaders are accountable for them.

People for Tomorrow.

Increasing capability, Respect for Diversity, and Ingrained Agility will define our people agenda.



Mr. TV Narendran
CEO & MD, Tata Steel

Digital is for Business

Our Digital interventions are enterprise wide and have already enabled resilience to manage unforeseen disruptions such as the pandemic.

TQM is a strategic Pivot. We seek to keep Quality at the centre of what we do, whether in operations or otherwise. It is unconditional.

Innovation thru' Ecosystem Play. Partnerships, Academia, and start-ups bring scale and pace to our efforts.

The Journey is never ending. Focus on TQM, Agile Way of Work (AWoW), Project Excellence, Innovation, Growth & Transformation will be ongoing.

IFQM Governing Council (GC) members, who were part of the Learning Mission



CEO Engagement in Transformation efforts is the real key to achieve Global Quality.

Mr. Venu Srinivasan,
Chairman Emeritus,
TVS Motor Company



There is immense learning from Tata Steel on all aspects of Business.

Mr. KN Radhakrishnan
CEO - TVS Motor Company



The question is why aren't we World-class already? It is in each of our hands.

Mr. Vivek Chaand Sehgal
Chairman, Samvardhana
Motherson International



Global Benchmarking enables the use of new Technologies and hastens progress.

Ms. Kiran Mazumdar-Shaw
Executive Chairperson, Biocon



Collaboration amongst companies is a foundational enabler.

Mr. Soumitra Bhattacharya
CEO & Director-IFQM

SAFETY NEEDS A CULTURE CHANGE

Rigor in Safety Operations

- Zero Harm Goals and Targets
- PPE Rigour
- Safety measurements and dashboards
- Skill building and certification
- Rail & Road Safety systems
- Mock drills
- Access control rigour
- Horizontal deployment of recommendations from incident analyses
- 5S and Visual Management standards and practices

Digitalization in Safety

- SURAKSHA Safety App
- Connected People and Assets
- Realtime visualization of Risks
- Video analytics assistance
- Hyper Personalization of records
- Dashboards for Safety Performance Index
- Safety score aggregation and analysis at various levels
- Instant Alerts on non-conformance with evidence
- EnSafeNXT interfaces for insights
- Safety Alert Command Centre

Institutionalized Safety Leadership

- Safety Leadership Dev Centre
- Practical Training Centre
- SHE Committee at the Board
- APEX Safety Council and sub-committees
- A network of implementation committees
- Felt Leadership programs
- Process safety assessments
- Best Practices Benchmarking
- Theme based Training
- Process Safety CoE
- Rewards & Recognitions

Occupational Health Improvements

- Monitoring high-risk cases
- Organization wide Risk perception assessment
- Systematic reduction of exposure to potential hazards
- NEBOSH* engagement
- Chief Wellness Officer in place
- Focus on Emotional and Physical wellbeing
- Focused Health Campaigns
- Ergonomic Assessments and Actions



**Building a
SAFETY CULTURE**

Integrated Contractor Engagement

- Early engagement of Vendors and Contractors
- Star rating of vendors guide the allocation of high-risk O&M jobs
- Safety Performance management
- Ghar-Se-Ghar-Tak – Extending Safety mindset from sites to homes
- E Learning & Onsite Training
- Safety Talks by Experts
- Program for Capability building for Hazard identification and Risk management
- VR based Training sessions
- E Work Permit based on assessment of skill needs

*National Examination Board in Occupational Safety and Health



INNOVATION AT SCALE AND PACE

FEATURES:

- 15000 sq meters of labs, Rs. 500 cr Equipment, ~ Rs. 500 Cr of value earned thru' R&D
- Aspiration to be amongst the Top Five Tech companies in the Steel industry.
- Uses a Management Framework to translate Tech efforts to business returns.



EXAMPLES	One billion USD potential for value creation from R&D		
Greening Steel	Carbon Capture and Utilization opportunities. Developments to move towards Water neutrality. Reducing use of Carbon by using H2 Injection in Blast Furnaces for chemical reduction.		
Limiting Pollution	Replacing the multi-stage pre-treatment needed for painting steel surfaces, usually called the 7 Tank process, with Anti-microbial coatings. This drastically reduces water pollution, keeping the quality intact.		
New Products	99.5% Iron for Pharma, Food and Nutraceuticals.	3D Printing of Iron parts. (Ex: Motor Armature)	Iron-Air Batteries for low power applications.
	Pouches for EV batteries, replacing the use of hazardous plastics.	CRNO Steel for Transformers.	Advanced High Strength Steel AHSS
	Advanced Ceramics (Medical Material)–Indigenously developed prod. process for Hydroxyapatite –First in India		Graphene-enriched elastomer solution, for Tire re-treading and industrial screens.
Waste to Wealth	Utilization of low-grade raw materials –HPPI (High Phosphorus Pig Iron), and yet ensuring quality.		Ingredients for Composites.
	Soil conditioner from LD slag and Pickling waste – DHURVI GOLD , a novel patented product launched by Tata Steel, is a unique mixture of about 10 micro and macro-nutrients required by the soil.		

Key Theme: **Keep inventing without any fear for Failure**



VALUE CREATION ON SHOP FLOORS

COLD ROLLING MILL and NEW BAR MILL

FEATURES:

- Relentless Debottlenecking to expand capacity. Ex: In the New Bar Mill, capacity has moved from 0.6 to 1.1 mt.
- Extensive Automation – Towards Digital Twin. Remote operation Ready.
- Production simulation precedes actual, to ensure quality and productivity.
- Analytics – Prediction of metal chemistry before processing.
- Product Identification, Tracking and Tracing all through the production chain. 5S at work.
- Video analytics for surface defect, even at high flow speeds.
- Emphasis on building global quality Branded steel that deserves premium - sold per length, not weight.
- Newer Premium grades – strengths beyond standards, for special applications.



AFFINITY FOR COMMUNITIES – MULTIPLYING IMPACT

“There is one kind of charity common enough among us... It is that patchwork philanthropy which clothes the ragged, feeds the poor, and heals the sick. I am far from decrying the noble spirit which seeks to help a poor or suffering fellow being... [However] what advances a nation, or a community is not so much to prop up its weakest and most helpless members, but to lift up the best and the most gifted, so as to make them of the greatest service to the country.”

— **Jamsetji Tata**

The Tribal Culture Centre (TCC) institutionalizes the Company’s approach towards the welfare of the tribal communities of Jharkhand. An Exhibition and an Amphitheatre in the Centre depicts the heritage and culture of the various tribes of the land. TCC promotes rural enterprise, Santhali language, vocational training and art and culture of the tribals with a special focus on the promotion of Jharkhand tribal sports called “Kati”. The TCC showcases the lifestyle of not only the Oraon, Ho, Munda and Santhal tribes but also the primitive tribes like Sabar, Birhor, Kharia, Mal-Paharia and Suray-Pahariya. Other projects focus on improvement of livelihood opportunities amongst the economically weaker sections and improvement of health and hygiene amongst marginalized families.



Digital at work, hand in glove with an invaluable Social Network

At the Centre, even as the participants were absorbing the philosophy, the legacies, and practices of Tata Steel towards its communities, **a siren went off.** “So, that means a person at a village, 80 Kms away, needs help and several messages have been triggered” said Sourav Roy, Chief (CSR). More than 600 people work closely with communities to co create solutions to the most under-served issues of the least visible groups, reaching out to more than a million and a half lives annually across India.

SAMVAAD - Community Conversations and Stories that Stir the Souls

Samvaad, a flagship program at TCC, gives the tribal people a space to speak about themselves and be better understood. They come from different places, seeking to collectively discover solutions to their challenges. A few tribals had conversations with the participants at the TCC. Each one had a story that highlighted how they relentlessly overcome their problems, both individually and collectively. Another such program is **MANSI** (Maternal and Newborn Survival Initiative), aligned to UN’s Sustainable Development Goals. Within 5 years from the start in 2011, the mortality rate had more than halved.



OVERFLOWING VALUES & INSPIRATION CENTRE OF EXCELLENCE

"In a free enterprise, the community is not just another stakeholder in business, but is in fact the very purpose of its existence."

— **Jamsetji Tata**

"Kind fate has prompted me to help in bringing to completion Jamsetji's inestimable legacy of service to the country."

— **Sir Dorab Tata**

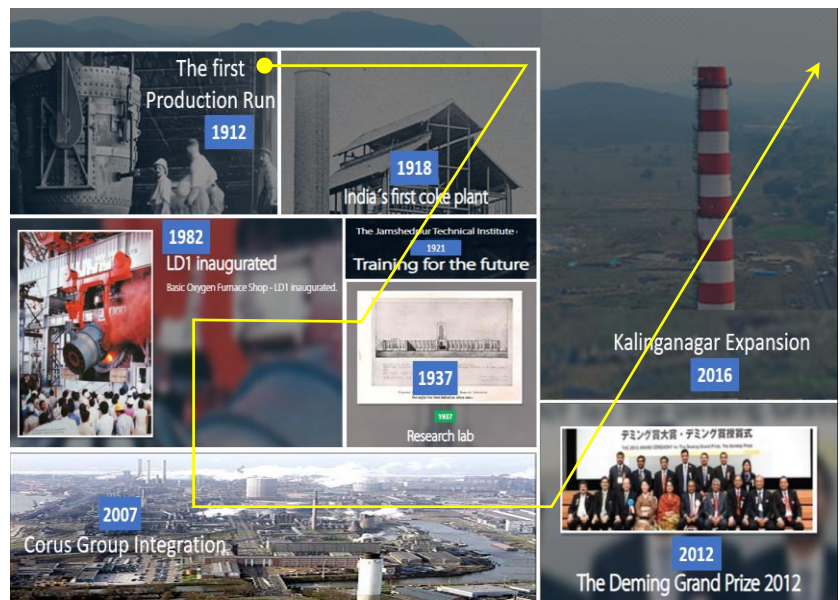


"No success or achievement in material terms is worthwhile unless it serves the needs or interests of the country and its people and is achieved by fair and honest means."

— **JRD Tata**

True to the beliefs of the Pioneers of the Tata group, the Centre of Excellence in Jamshedpur highlights the role of Industry, Education, Arts, Culture, Sports, and other spheres of life in the development of a nation. A walk through the centre gives a glimpse of leadership conversations and Board notes on subjects such as Development, Innovation, Corporate Governance, Quality, Collaboration, Customer Satisfaction, Sustainability, Productivity and more, all of which are still the lexicon of modern management. Also enmeshed is a narrative on how the entrepreneurs and community leaders of the time, including spiritual leaders, statesmen and scientists influenced each other, as the country began to take roots.

The centre captures numerous highlights of Tata Steel as an enterprise alongside the rich legacy of the founders and leaders, as it continues to traverse outliving multiple generations. It serves as a true north pole of values, ethics and purpose for organizations seeking to sustain and contribute to the nation in continuum. Technological leaps in steel making, material handling and safety, besides geographic expansion and market reach demonstrate the spirit of its people. Some of the people practices such as provident fund, working hours, creche for working women and health care are in vogue, even before governments and legislation across the world could frame codes and guidelines. The stories and anecdotes that are narrated, with great interest and passion, trigger goosebumps and will stay with us for a long time.



A Glimpse of Tata Steel's journey as an Enterprise



A spell-binding experience for the participants.

TATA STEEL'S DIGITAL TWIN IN FULL VIEW

Visiting the Integrated Remote Operation Centre - IROC was like holding the mammoth multi-million-ton Tata Steel plant on one's palm. Crystal clear displays, live Drone images, hundreds of camera feeds, besides numerous signals rushing in and out of command centres gave a view of operations in real time. Automated commands optimized over time, fine tuning actions with occasional manual overrides through touchpads and joy sticks provide an assurance of control over planned production of steel. GenAI powered predictions and simulations make processes efficient while making workplaces safer. It was an immersive experience that demonstrated how Automation and Digital can simplify by conquering distances and digesting complexities.



The participants visited three different integrated control rooms to experience the Digital Twin

Integrated Mining	Sinter Plant operation centre	Maintenance Centre
<ul style="list-style-type: none"> • 3D Maps and simulations to ensure compliance to Regulations & norms. • Sustainability practices for self-sufficiency in water and land restoration • Extensive GPS and topography data used to manage traffic. • Demonstrating 'What is in it for me' as an approach to lead people to Digital. • Extensive video analytics, Poka-Yoke and feed forward messaging deployed for safety. 	<ul style="list-style-type: none"> • Continuous integration of Sintering plants has enabled internal customers and supplier sit next to each other, though their sites are distributed. • Extensive learning from the past is used to replicate swiftly. This greatly supports the inorganic growth agenda. • Safety Correction Action-Preventive Action (CAPA) extensively amongst employees assisted by video and image analytics. 	<ul style="list-style-type: none"> • Assessment led journey towards a state of Prescriptive Maintenance. • Segmentation based approach to address needs of Moving equipment. • Benchmarks & learning from Autonomous Automobiles used extensively. • Asset Diagnostics & Analytics in place. • Focus on Sustainability & safety, besides Reliability. • Ability to predict failure is on the rise.



DIGITAL TRANSFORMATION

The Digital journey of Tata Steel this far makes a fascination story. It began with Automation of machines, production lines and units, which made production processes increasingly efficient. The deployment of SAP underpinned Production to Businesses more tightly. With Data explosion and Geo expansion of the enterprise, in came Cloud technologies, making Data available where needed, real time. Analytics and AI are now helping in customizing and refining its approaches towards its stakeholders.



**AUTOMATION, SAP
SEAMLESS EFFICIENCY**
~2000 onwards



**DATA & APPS ON CLOUD
DATA DEMOCRATISATION**
~2010 onwards



**ANALYTICS & AI
HYPER PERSONALISATION**
~2020 onwards



Mr. Jayanta Banerjee,
CIO, Tata Steel

**There is not a single line of code written for Digital in Tata Steel,
other than those needed to enhance Business or enable People.**

Highlights this far:

- Establishing a single source of Truth across the enterprise and with stakeholders.
- Integrating all IT disciplines into one entity and enabling Phygital phenomenon.
- 260+ AI models deployed that conduct more than 1500 Descriptor analytics.
- 21billion GenAI Tokens consumed.
- 2B USD value addition goal for Digital, out of which about 70% has already been accrued, reflecting a 7X ROI.
- Warding off 600 cyber-attacks a month thru' state of the art Cybersecurity.
- Deploying a 'Zero Trust Environment' to ensure evidence basis for areas such as Safety and compliance.
- Pursuing maturity in Data Excellence relentlessly, using TCS's DATOM Digital evaluation architecture.

Use Cases

Safety Excellence – Simulation of pathways	Safety – MY PASS : Tracking & Closing all Alerts
Price Prediction of Coal with 74 to 85% accuracy	One Tata Operating Network for seamlessness
Productivity – Simulation of production runs	Integrated margin management
Vetting Contracts for assumptions – 120 Cr saved	Sentiment analysis of business and people related subjects
eCommerce Platform for consumers of branded steel	Data led Planning and Scheduling excellence
Visibility of B2B Supply Chain	Self-help features for employees – Ex: Buying Laptops
Digitalization of Liquid Steel Tapping operation	e-learning and Skill building



**Early inspiration and
e-commerce platform
for IHBs**



**VAP growth & Tracking
for Distributors with
order promise enabling
MSMEs**



**Supply chain visibility
for OEMs**



**Three assets recognized
as 4IR Lighthouse**



**Rated "Synergized" in DATOM
Assessment (2022)**



**Industry leader in Digital
Execution 3 yrs. in a row**

BUILDING FUTURE READINESS THRU' PEOPLE

Since inception in 1907, Tata Steel has been demonstrating exemplary care for its people. Maintaining industrial harmony for nearly a century amongst its ~36k people spread across 31 workers' unions is a living proof of its belief system. Many of its people practices have been industry firsts, which are in vogue even before related legislations were drafted. These span across livelihood, welfare, health, arts & crafts, culture, sports and more. Community has been looked upon as the very purpose of the enterprise.

Some key People Indicators and Practices

Succession cover is tracked to ensure continuity	Flexible approach to working, including WFH
Current PMS refocuses on Employee Development	Supporting innovation and creativity with freedom to fail
Attrition data is sliced & diced to draw actionable insights	AGILE is a theme for competency building
Employee Value Propositions are drivers for improvements	Vendors and Contractors are part of development agenda
Diversity Mix 20%. Benchmark 25%.	Pursuing 'Buck Stops @ me' mindset
Joint Consultative environment	Continuous balance between Generalists and Specialists
116.5 training hours per employee – highest amongst top ten global steel producers.	
Expansive facilities for capability building in SNTI, TSMDC, JNT VTI, SLDC	
Diversity, Inclusion, and Affirmative Action are areas for enhanced focus, including PWD (Persons with Disabilities)	



ASPIRATIONS & GOALS

TALENT DEVELOPMENT

RECOGNITIONS

MULTI - DIMENSIONAL

REFLECTIONS – WHAT MESSAGES ARE WE TAKING BACK?



In an outdoor setting next to the Dimna Lake that was surreal, and guided by Mr. Sanjay Dutt who moderated the entire Learning Mission, the group addressed two questions; 1) What is the inspiration you are taking back for yourself and your company and 2) What questions or Priorities come to your mind looking at the broad purposes of NATION FIRST, BUSINESS NEXT? The session got each participant dip deep into their thoughts and express, which by itself was stirring and energizing.



NEXT STEPS

1. Spread the good message.
2. Inspire and influence big ticket resolutions and decisions in our companies.
3. Continue to contribute to the larger purposes of Nation first, and to uplift brand India.
4. Involve and engage more organizations, people, and resources to add momentum.

NEXT LEARNING MISSION TO TVS MOTOR CO, HOSUR, IN APRIL 2024

THANK YOU, TATA STEEL!

At a tastefully curated Dinner hosted by Mr. TV Narendran and Ms. Ruchi Narendran on 4th Jan 2024, gratitude was expressed to Tata Steel for a rich learning experience. While presenting a memento to them, Mr. Venu Srinivasan hoped such learning will continue and invited Tata Steel to join future such missions. Mr. Vivek Chaand Sehgal said it was his first visit to a steel plant, and that it was an eye-opener. Mr. KN Radhakrishnan acknowledged that it takes tremendous efforts and goodwill to share so extensively.



In response, Mr. TV Narendran replied saying Tata Steel looks forward to learning from diverse fields and sectors.

THE FABULOUS ORGANIZING TEAM

The remarkable capability of Tata Steel in organizing large scale interactive congregations was demonstrated by the Learning Mission's organizing team under the leadership of Mr. Avneesh Gupta. Agenda Design, lining up presentations, meticulous minute to minute planning, impeccable arrangements for logistics and comfortable stay, and the orchestration of the entire flow including adapting to inevitable changes went along like a song. Doing all that with palpable warmth and a broad smile was an added icing on the cake. Our gratitude to Mr. Avneesh Gupta, Ms. Tripti Srivastava, Mr. Ankur Gandotra, Mr. Divyanshu Srivastava, Mr. Debashish Choudhury, Mr. Vineet Thakur, Mr. Utkarsh and the entire team. Also, our gratitude to all the Presenters in conference rooms and on shop floors for their vivid descriptions, and responses to our clarifications and questions.

PARTICIPANTS

Name	Company	Name	Company
Mr. Venu Srinivasan	TVS Motor Company Ltd	Mr. Vivek Chaand Sehgal	Samvardhana Motherson Group
Mr. K.N. Radhakrishnan		Mr. Pankaj Mital	
Mr. R. Anandakrishnan		Mr. Anurag Gahlot	Motherson Sumi Wiring Ltd
Mr. A Rajkumar		Mr. Ashwani Bhargava	Boeing India
Mr. P Nagaraj Kanna		Dr. Rama Kant Shukla	Dr. Reddy's Laboratories
Mr. S Senthilkumar		Mr. Karthik Iyer	Sun Pharmaceutical Industries Ltd
Mr. J Baskaran		Mr. Rajendra Das	
Mr. Maheshwaran V Calavai		Mr. Davinder Singh Marwah	
Mr. Ritwick Tandon	Biocon Ltd	Mr. Janak Mehta	TQMI
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