



# **D**ESIGN to **DELIVERY** Innovation that improves lives



## ABOUT THIS REPORT

This Annual Report is aimed at meeting the information requirements of all our stakeholders, including, investors, customers, suppliers, employees, contractors, competitors, press, analysts, the Government and others.

### MATERIALITY

This Report includes information, which our Senior Management believes, is material to our stakeholders and it presents an overview of our businesses and associated activities that help in short, medium and long-term value creation. We have listed the material financial and non-financial issues for the Company and have presented information around our

strategic approach towards these issues. The Report also discusses what different capitals mean for the Company, as well as the inter-linkages and trade-offs therein.

### SCOPE OF THE REPORT

We have presented the information on all our sectors, in a fair, balanced and understandable manner. To optimise the strategic overview, performance disclosures, governance oversight and risk management and control, the contents of this Report have been reviewed by our Senior Management. The performance disclosure is reported for the period FY2017-18.

### REPORTING PRINCIPLE

Through this Report, we are attempting to present our 'integrated thinking' process by aligning our communication with the Integrated Reporting <IR> framework by International Integrated Reporting Council (IIRC) and the Companies Act, (2013). The Report tries to communicate a clear, concise, integrated story that explains how all our resources are put together in creating value for the business and its stakeholders.

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# Design to Delivery

## **Innovation that improves lives**

Tata Consulting Engineers was started with an aim to provide engineering design consultancy for the power sector. Over the years, we have built capabilities to offer a complete spectrum of engineering consultancy services.

TCE has multi-disciplinary expertise across civil, mechanical, instrumentation, electrical and digital spheres. Adaptability and innovation are our key competitive advantages. We consistently adapt, invent and innovate across all our businesses, aligning our solutions to the clients' needs.

Right from design to delivery we offer our clients invaluable expertise as an integrated engineering service provider. This has been largely possible by cementing relationships with the stakeholder communities. Even as we transform businesses and build future-ready solutions, we remain committed to consistently create value for all our stakeholders.

# Designing innovations, delivering solutions

Tata Consulting Engineers (TCE) began its journey with an aim to provide engineering design consultancy for the energy sector.



Today, the Company services three core industries – Infrastructure, Energy and Process. With presence in over 55 countries, TCE serves domestic as well as international markets. The current share of international business orders is at around 44% of overall order pipeline.

Encompassing the entire spectrum of services, the Company's technical expertise extends from conceptualising signature designs for clients, supporting them through the project lifecycle and helping them with solutions that enable business growth and enriching their end consumers' lives.

The BUs operate from multiple locations called Delivery Centres (DCs). TCE has DCs at seven locations — Mumbai, Bengaluru, Kolkata, Jamshedpur, Delhi, Chennai and Pune. TCE has also established Dedicated Engineering Centres (DEC) to address the unique needs of its premium customers.

Currently, TCE is executing projects (Design, Engineering and/or project management services) at 130 sites across the world. With expertise and technological capabilities, the Company has a dedicated talent pool with core engineering skills, thus providing an integrated service model for the clients. The Company's prowess in managing complex projects, experience in building cost-effective and environment-friendly solutions, diverse engineering skills, quality standards, processes and cutting-edge engineering tools — make it one of the most sought after integrated engineering solutions partner across the globe.

Over the years, TCE has consistently evolved to stay abreast with the latest technological developments and industry trends, to create relevant and long-term solutions for clients. The Company made its first-ever acquisition in FY 2012-13, when it acquired Ecofirst

– a sustainability engineering consultant. This subsidiary offers boutique services in the built environment space.

With Industry 4.0, there is a change in the way companies do business across the globe. TCE, has leveraged its expertise to offer solutions for the Industrial Internet of Things (IIoT). In FY 2016-17, TCE entered into a collaborative agreement with application and automation experts in the field to provide niche services in engineering for the IIoT.

With increased regulatory requirements, TCE also provides services to manage clients' operational requirements such as plant engineering, asset lifecycle management and plant modernisation solutions.



## Vision

To be an internationally respected engineering consultant offering comprehensive solutions



## Mission

To provide technically excellent and innovative solutions for adding value for all stakeholders, and operate globally as professional consulting engineers



## Core Values

- > Customer Satisfaction and Loyalty
- > Employee Dignity and Self Respect
- > Technical Excellence with Professional Ethics
- > Organisational and Individual Growth
- > Responsibility to Society

# Designing innovations, delivering solutions

## Industries



**Infrastructure**

**36%**

Share in revenue



**Energy**

**25%**

Share in revenue



**Process**

**39%**

Share in revenue

Sectors

Sub Sectors

**Infrastructure**

Built environment & Transportation  
Water & Waste management

**Energy**

Power  
Nuclear

**Process**

Chemical  
Steel Metal & Mining

## Services

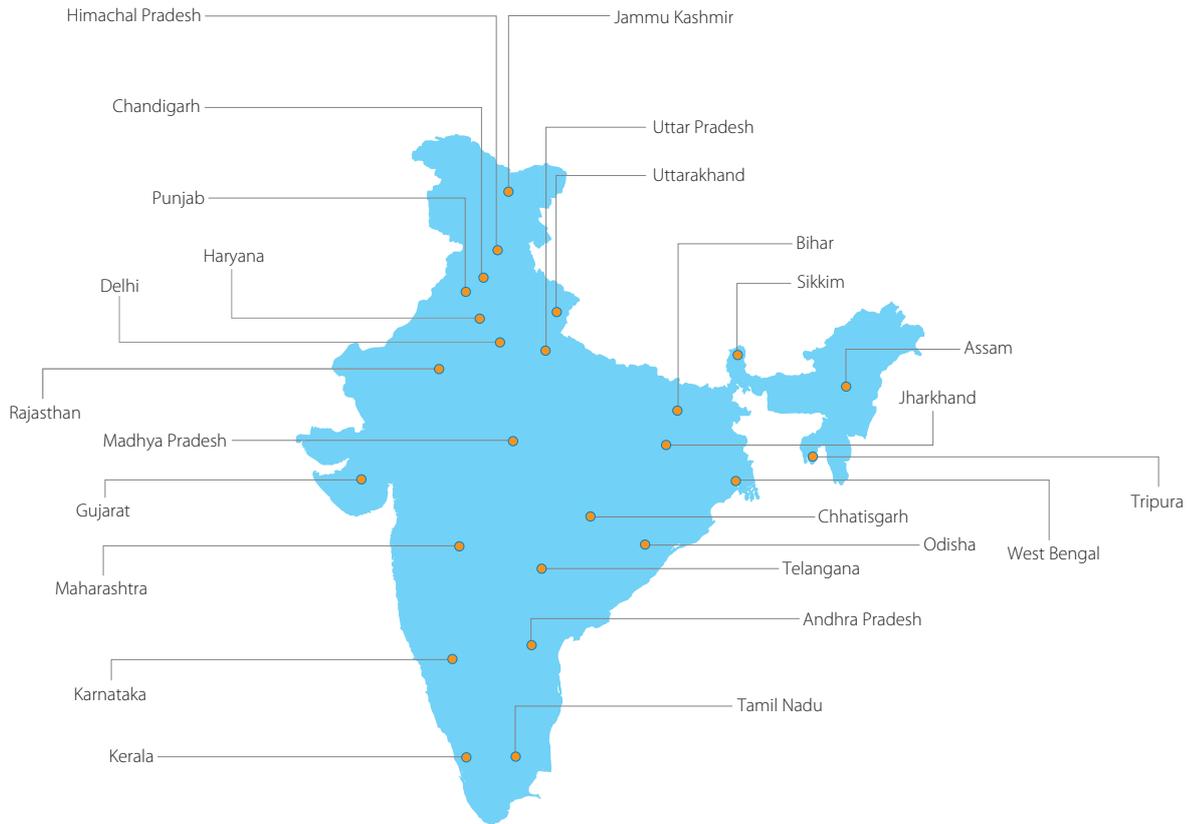
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- > Design & Engineering
- > Project Management
- > Procurement Management Services
- > Construction Management & Safety
- > Advanced Technologies & Simulation



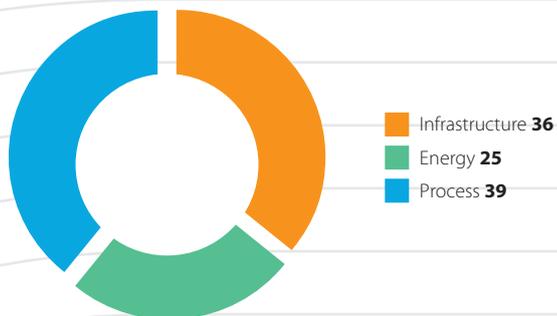
# Our footprint

## Domestic projects (FY 2017-18)



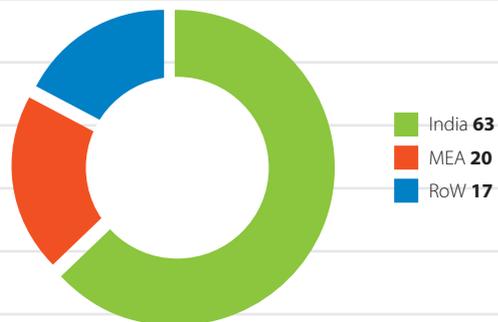
### SEGMENTED REVENUE

(% of revenue from sales)

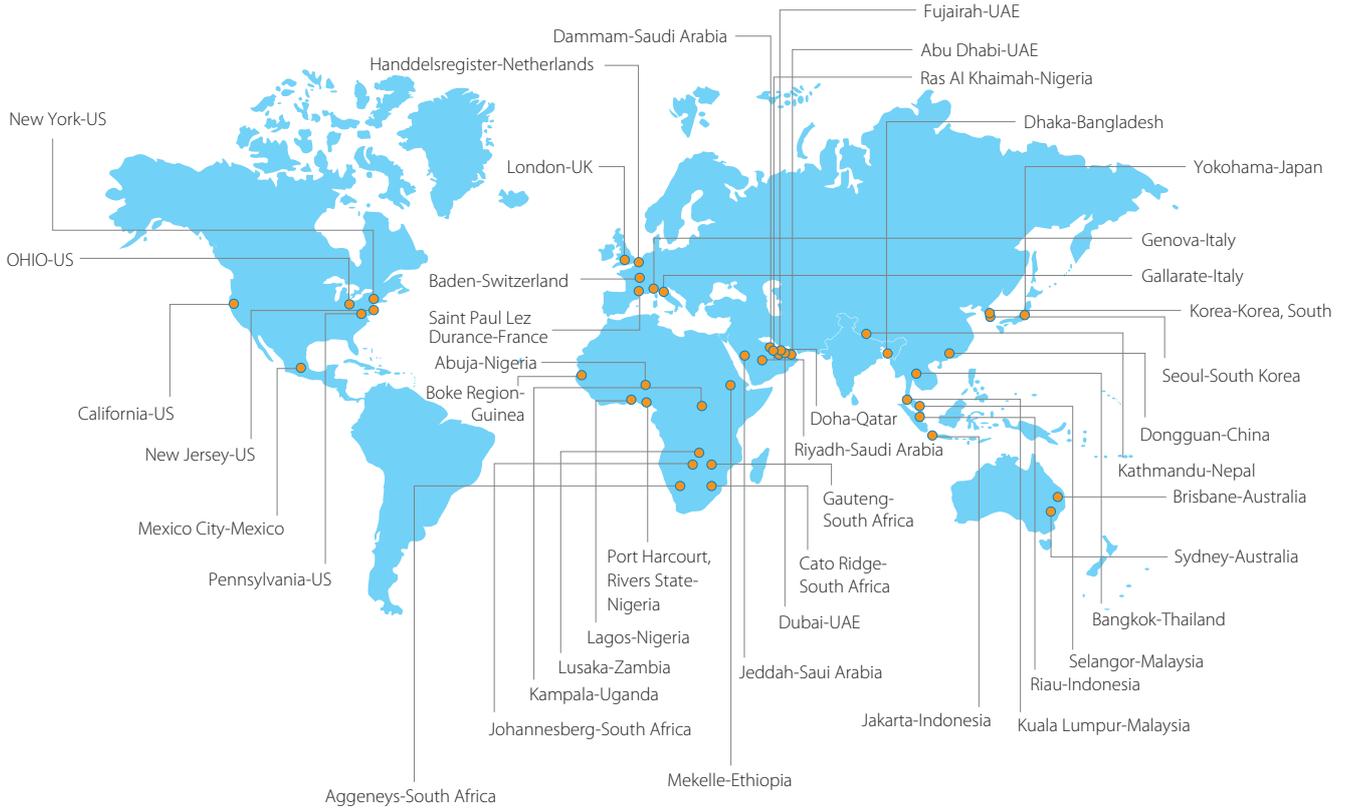


### REGION-WISE SHARE IN REVENUE

(% share of revenue from sales)



# International projects of (FY 2017-18)



## DESIGN TO DELIVERY TCE FOOTPRINTS SINCE INCEPTION

100<sup>GW</sup>

Power plants engineered globally

200<sup>Mn TPA</sup>

Material handling

20,000<sup>MLD</sup>

Water and waste water treatment

14<sup>Mn</sup>

Man-hours 3D engineering across businesses

50<sup>Mn</sup>

Meters piping engineering

## Board of Directors



**Mr. S. Padmanabhan**  
Chairman



**Mr. P. K. Ghose**  
Director



**Ms. Hema Ravichandar**  
Director



**Mr. Amit Sharma**  
Managing Director

Note: Ms. Neera Saggi retired from the board w.e.f. 12.02.2018

## Our Management



**Sachin Dewasthalee**  
Chief Financial Officer



**Kalpana Jaishankar**  
Chief Human Resource Officer



**Sachin Mishra**  
Legal & Company Secretary



**S. Vidyanand**  
Energy



**Manoj Kumar**  
Process-Chemical



**Dr. Tapan Choudhury**  
Process-Steel Metal & Mining



**Vikram Bapat**  
Infrastructure



**K. Ramesh**  
Project Management  
Consultancy

**Subsidiary**  
**Ecofirst Services Ltd**

**BOARD OF DIRECTORS**

**S. Padmanabhan**, Chairman

**Amit Sharma**, Director

**K. Ramesh**, Director

**S. Vidyanand**, Director

**EXECUTIVE  
MANAGEMENT**



**Chitranshu Kaushik**  
Chief Operating Officer



**P. R. Shahu**  
Advanced Technologies



**Rajat Kaushal**  
International Marketing  
Group (RoW)



**Ashwani Sadhu**  
International Marketing  
Group (MEA)



**Dr. Rajashekhar Malur**  
Chief Technology Officer



**Rajeev Tanna**  
Chief Risk Officer



**Aditya Kumar Mishra**  
Strategy & Business Excellence



**Mallika Sriraman**  
Corporate Communications  
& CSR



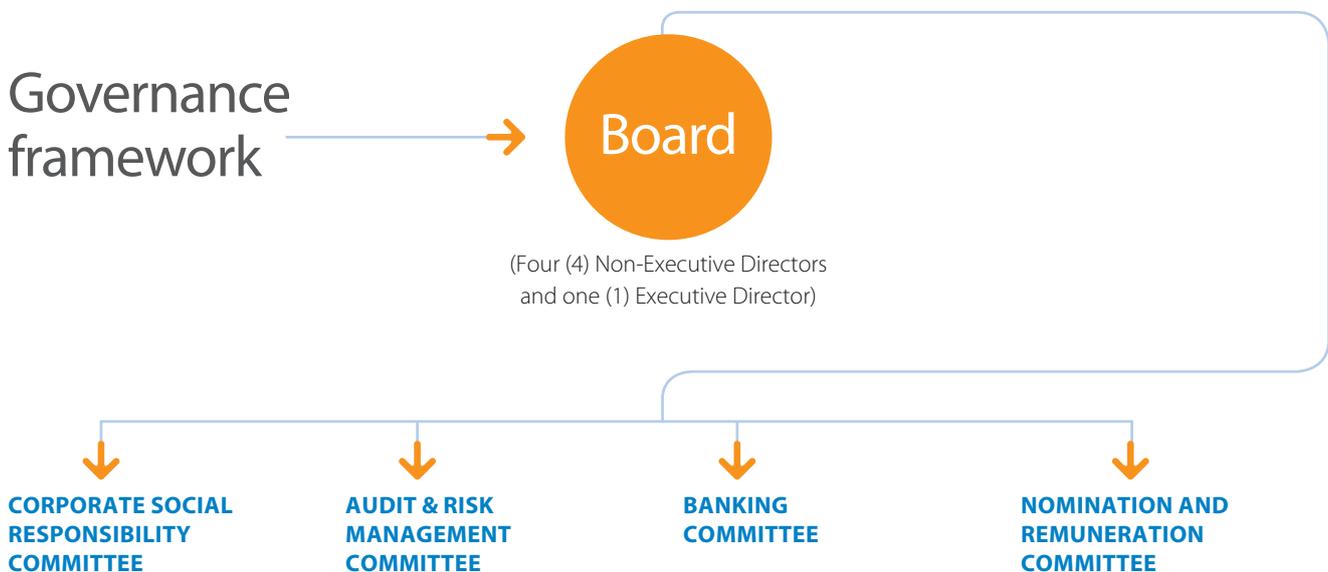
**Col. Anurodh Mishra**  
Corporate Administration



**Sayona Philip**  
Government Relations

# Our governance

TCE has a formal structure for corporate governance, which is reviewed and monitored from time to time by the Board and Board Committees for managing the governance system.



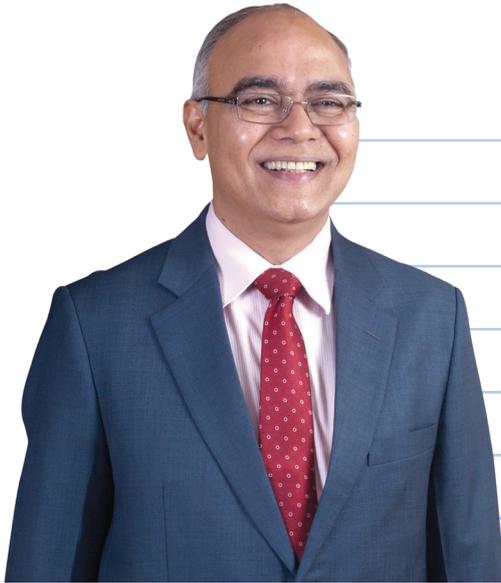
## Board composition

Board member	Committee details
<b>Mr. S. Padmanabhan</b> Non-Executive Director	Chairman, Member of the Audit and Risk Management Committee, Chairman of the Committee of the Board, Member of the Nomination and Remuneration Committee, Member of the Corporate Social Responsibility Committee
<b>Mr. P. K. Ghose</b> Non-Executive Director	Chairman of the Audit and Risk Management Committee, Member of the Committee of the Board, Member of the Corporate Social Responsibility Committee
<b>Ms. Hema Ravichandar</b> Non-Executive Director	Chairman of the Nomination and Remuneration Committee, Member of Audit and Risk Management Committee, Member of Committee of Board, Member of the Corporate Social Responsibility Committee
<b>Mr. Amit Sharma</b> Executive Director	Managing Director, Member of Nomination & Remuneration Committee, CSR Committee, Audit & Risk Management Committee, Member of the Corporate Social Responsibility Committee

## Key focus areas of the Board

Focus area	Actions
Leadership accountability	Legal compliance, audit and risk management overseen by the Nomination and Remuneration, Corporate Social Responsibility and the Audit Committees
Strategy accountability	No. of Board meetings conducted: <b>5</b> Attendance: <b>100%</b> Strategy and action taken is reviewed twice a year Performance on key business goals is reviewed annually Achievements and important company affairs reported to the holding company, annually Key account risk review Succession planning and key talent management review CSR budget approvals, programme review and third-party audit Discussions on Audit Committee reports
Fiscal accountability	Legal and compliance audit conducted and recorded by the Audit Committee
Transparency in operations	Relevant information, including financials is shared with all stakeholders on a timely basis Information as stipulated by the Company's Act is shared on the Company's website
Selection of governance Board members	Being a wholly owned subsidiary of Tata Sons, TCE has adopted the procedure, adopted by the Tata Sons Board, which includes (a) Board selection methodology (b) Board governance system. The Independent Director Code is accessible from the Company website <a href="http://www.tce.co.in">www.tce.co.in</a>
Independence and effectiveness of internal and external audits	The Company has adopted the policy for rotation of the audit partners Managing partner dealing with TCE, in both the cases, is changed every five years Internal audit reports are presented to the Audit Committee and deliberated by the Board
Protection of stakeholder interests	Expectations from customers and employees gathered through surveys and other mechanisms for communication/feedback Feedback is reported to the Board on exception basis Group HR and Legal also communicate with the Company management on policy guideline changes Stringent applications of key policies such as, Code of Professional Ethics Policy, Prevention of Sexual Harassment Policy (POSH), Whistle Blower Policy, Gift Policy, Corporate Communications Policy
Sustainability and risk management	Two cases reviewed under Risk Management Framework and presented in each meeting of the Audit Committee Formal risk management process implemented at proposal and execution level
Succession planning	Succession plans for key positions are made and put up to the Nomination and the Remuneration Committee Management teams are invited to make presentations to the Board on company matters for assessing senior management's performance and capabilities

# Chairman's statement



**S. Padmanabhan**

# 12%

increase in gross revenue  
over the previous year

## Dear Stakeholders,

This is a very special year for all of us as we mark the 150th anniversary of the Tata group. The group's approach towards building a pioneering and socially responsible business enterprise has not just contributed to its longevity but also towards building the Tata brand, which is trusted by millions. The significant trust that we enjoy from our stakeholders stands testimony to this and Tata Consulting Engineers (TCE) is indeed proud to be part of this unique and inspiring 150-year heritage.

## STRATEGIC FOCUS AND ACHIEVEMENTS

During the last financial year, we aligned the three pillars of customer centricity, collaboration and capital management. Concentrating on customer-driven markets and aligning service models suited to customer requirements, we stayed focused on demand-driven markets to leverage opportunities in sectors and

regions with capital investment. We also customised services and delivery models according to the unique needs of our international customers. This ensured a steady revenue stream and bolstered our top line growth. Taking a collaborative approach, we partnered with Korean EPC players to expand our footprint in the energy industry. We also tied up with consortium partners for business in the infrastructure industry to grow in the urban development sub-sector. This helped to retain and grow market share in the power industry globally and make inroads in the smart city development space within the urban development sub-sector. Our efforts to build efficiencies in working capital and human capital management helped secure our bottom line.

Process re-engineering through Rhythm 2.0 initiatives helped increase productivity and efficient capital utilisation.

## PERFORMANCE OVERVIEW & OUTLOOK

With sustained efforts to improve top line and bottom line, I am pleased to report that we posted a healthy revenue growth. Our gross turnover was at ₹649 crore, an increase of 11.88% over the previous year. Profit before taxes was ₹73 crore posting a growth of 34% over the previous year.

Major contributions to our revenues arise from the Middle Eastern, African and Asian markets. With a good investment climate and stable capital markets, we expect the outlook to remain positive in the emerging and developing markets. We have also enhanced our service portfolio to offer services in digitalisation and IIoT which can create new opportunities in the advanced economies.

The current situation calls for a new approach to the engineering consulting

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We have also enhanced our service portfolio to offer services in digitalisation and IIoT which can create new opportunities in the advanced economies. 99

business. We are focused on retraining and upgrading skills of our engineering talent to meet the challenges of the new economy with increasing emphasis on digital engineering services.

#### ECOFIRST SERVICES

Our subsidiary, Ecofirst Services Ltd., is a boutique engineering services company offering services in the built environment. It is in the 10th year of operations and growing steadily. Even amid adverse tidings in the real estate sector, Ecofirst Services posted good y-o-y growth in income from operations, of 34%. It's performance is based on the positioning of services in sustainability solutions and integrated design solutions. Group synergies, positive economic developments and benefits of leveraging multi-location presence combined with brand value of the parent organisation has resulted in great potential for Ecofirst and it is poised for expansion in relevant markets.

#### CORPORATE GOVERNANCE

FY 2017-18 witnessed the strengthening of internal processes and systems. During the reporting period, our focus remained on continuous improvement in governance controls and risk management. All our Board members were actively engaged in various aspect of our development. In FY 2017-18, Ms. Neera Saggi retired with effect from 12<sup>th</sup> February 2018. I thank her for adding value to the functioning of the Board and its various committees.

#### CORPORATE SOCIAL RESPONSIBILITY

Upholding the Tata values of giving back to society, we leveraged our unique skills to benefit society. Our initiatives in the realms of education, health and hygiene, sustainable livelihoods and infrastructure ensured consistent, positive impact. Our flagship programmes are currently being scaled to bring more beneficiaries under the fold and further enhance the effects.

#### OUTLOOK

Even as the macro economic climate poses challenges, we have put in place strategic initiatives to ensure a steady stream of business from our capital investment projects. We also expect our revenue investment projects such as asset lifecycle management, digitalisation and industry 4.0 solutions to add to our development. Going forward, we will focus on nurturing and developing talent. This, combined with improved knowledge management will help us retain our edge as a top-notch engineering consultant.

Tata group's 150 years has witnessed the evolution of its companies as global leaders in their businesses. We have been an integral part of the remarkable growth story of the group, providing engineering expertise to several of the Tata group companies. I would like to thank our employees, our customers and partners for being with us through our journey.

Sincerely yours,  
**S. Padmanabhan**

# Managing Director's overview



**Amit Sharma**

# 34%

increase in PAT over  
the previous year

## Dear Stakeholders,

### 150<sup>TH</sup> ANNIVERSARY OF THE TATA GROUP

The Tata group is a great example of a pioneering spirit and innovation, a socially sensitive Group, carefully nurtured over 150 years – this is perhaps the greatest achievement in history by an Indian organisation. 150 years group, the journey continues with new vigour and agility. Today, the Tata group is the largest Indian corporate group, with a turnover of over ₹650,000 crores, with interests across a range of businesses, from automobiles and IT services, steel and chemicals, infrastructure and financial services to consumer goods and hospitality. The Tata group also has global presence in over 100 countries with global leadership in a number of businesses. This is what TCE has set itself up to. We would like to contribute to the development of the group by pushing our own boundaries for growth. To be part of this legacy and the opportunity to participate in the growth

story in the future, is a matter of pride for the Company. TCE has had the privilege of having stalwarts such as Dr. H.N. Sethna, Mr. Sumant Malgaonkar, Mr. P M Agerwala, Mr. Syamal Gupta and Mr. Prasad Menon as past Chairmen to shape its growth. Presently, under the able guidance of Mr. S. Padmanabhan, our Chairman, TCE will ensure to continue this rich legacy to reach new heights. The Company will continue to add value to the nation and convert dreams of our stakeholders into reality. As engineers, we strive to stay ahead of times and carve a niche in emerging technologies to 'engineer a better tomorrow'.

### THE GROWTH PLAN

TCE's strategy to maintain top line and bottom line are three pronged: a) maintain a 50:50 domestic to international project mix to ensure consistent earnings; b) serve as trusted advisor to strategic clients and preferred partners in their growth, which will ensure continuous engagements with

marquee clients; c) counter dependence on capital investments by also focusing on OPEX solutions related to plant asset life cycle management services.

### RHYTHM 2.0 OVERVIEW & OUTCOMES

Rhythm is TCE's business process re-engineering initiative started in 2013. Since commencement, this initiative has resulted in 100% automation of key internal processes and brought about greater efficiency in our day-to-day operations. With greater transparency and strong data-backed dashboards, TCE has the agility and capability to make informed decisions. FY 2018-19 will focus on Rhythm 2.2 with continued focus towards achieving the next level of maturity in each of the focus areas namely Technology, Operation, Sales, People Excellence.

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21% YoY increase in revenue productivity was achieved with growth in international footprint and digitisation of operations. 99

#### What we hope to achieve with Rhythm 2.2

From a customer standpoint, Rhythm 2.2 initiatives are aimed to deliver value engineering and cost optimisation, efficiency in deliverables, virtual and customised delivery models to ensure customer delight. Improving capital management, the initiatives will ensure improved working capital management, greater profitability and returns to shareholders and optimum utilisation of talent with greater workforce agility.

**Operations Track:** Safety, regulatory compliance and asset optimisation for customers through sustainable engineering solutions, improved knowledge management to ensure quick turnaround of project deliveries, risk management processes for greater efficiency in deliverables, informed decision-making by leveraging automated processes.

**Sales Track:** Agility to leverage new relationships in emerging business opportunities, new service relationships for customized solutions for marquee clients, focused penetration into key market segments.

**Technology Track:** Value additions to customers through innovation and knowledge management, build capabilities in emerging technologies relevant to Industry 4.0 such as Industrial Internet of Things (IIoT), modularisation concepts and packaged solutions to reduce go-to-market time for customers and service upgrades to leverage opportunities in smart asset management, sustainability solutions for electric mobility, smart cities, virtual solutions (simulation, 3D-5D), among others to enable asset sweating by customers. Digital delivery with automation and workflows has been aligned with our standard WoW (Way of Working) process that is being embedded in our tools and processes.

**People Track:** Leadership building, advanced project management certifications to serve marquee customers and ensure long-term relationships with clients, training and re-skilling workforce in readiness for leveraging opportunities in emerging technologies, talent management to ensure engaged and agile workforce.

These tracks are the focus areas, which will help TCE scale to the next level of growth.

#### PERFORMANCE OVERVIEW

FY 2017-18 was a very positive year with TCE posting the highest gross turnover in its history with ₹649 crores. Profit before taxes was at ₹73 crores. 21% YoY increase in revenue productivity was achieved with growth in international footprint and digitisation of operations. TCE offers services in three broad industry sectors – Infrastructure, Energy and Process. The Infrastructure segment

## Managing Director's overview (Contd.)

contributed to 36%, Energy contributed to 25% and the Process sector comprising Chemical and Steel, Metal & Mining contributed to 39% to overall revenue from sales.

In the Infrastructure sector, the Built Environment sub-sector with domestic businesses from smart cities projects and water and waste management projects funded by international funding institutions paved the way for growth. The Company is lead consultant contributing to India's smart city growth and has made inroads in this sector with consortiums and partnerships.

The Energy sector saw growth owing to new projects in nuclear energy in the domestic markets, while in the international markets projects in plant upgrade and modernisation, plant lifecycle management assignments and Greenfield power generation projects provided growth opportunities.

Process and Energy sector focused on opex-related services such as digitalisation and plant upgrades and Dedicated Engineering Centres (DEC) for marquee clients. TCE provides integrated engineering solutions from concept to commissioning. The Company's services in Project Management Consultancy and Construction management services across the industry segments ensured profitability due to the Company's high capabilities in safety and project management. TCE's in-house diverse talent and highly mobile engineering force helped manage complex projects to the satisfaction of customers across the globe.

### KEY PRIORITIES FOR FY 2018-19

#### Unique Customer Service

With increasing technological advances, the needs of clients have changed. TCE has adapted to this change by providing services to the unique needs of its customers. It services its marquee customers globally, through DEC that provide value-added services exclusive to their needs. The Company plans to increase such client base to offer unique solutions. It has strategic partnerships and consortiums that have helped make inroads in various new sectors and service lines.

#### New Services

The Company has continuously invested about 10% of profits each year on new service lines and engineering and design software and technologies. The focus for FY 2018-19 will be towards responding to customer needs, especially on the OPEX front – service offerings with focus on capacity expansions, improvements, digitisation and automation with sensors and IIoT adoption. The automation of plant assets and changing regulatory climate calls for continuous upgrade of plant assets. Changing technology, safety concerns and moving to cloud servers requires digitisation of existing plant assets. Smart assets that are sensor driven and generate and manage plant data for asset optimisation, among others have created a niche for TCE's engineering expertise. Smart assets comprise mechanical enhancements of assets combined with process optimisation. The planning and execution of smart asset projects require the special expertise of engineering consultants. TCE will focus in this segment, especially in the developed economies.

It has moved towards 90% delivery through 3D platforms. The focus will continue to increase customer awareness for adoption of digitalisation.

#### People Development

The changing customer priorities also call for retraining employees for Industry 4.0 readiness. FY 2018-19 will focus on re-skilling people to meet the requirements of IIoT and digitalisation. A combination of technology and core engineering expertise will be the key differentiator for TCE, going forward. With increasing complexities in project delivery, high client expectations and need for cost efficiencies, TCE will focus on advanced certifications in project management for its talent. People utilisation, productivity and international standards in project management will be key drivers in 2019. FY 2017-18 saw the introduction of a bespoke Project Management Certification programme developed with PMI exclusively catering to the needs of the engineering consulting business. Going forward, the focus will be to increase project management certification with an aim to have 10% of the Company's workforce trained and certified on professional project management best practices.

#### Responsibility to Society

TCE continues to focus on maintaining high standards in safety in design and projects and for individual safety. TCE continues with its commitment to society through its focus areas of infrastructure, health & hygiene, education and sustainable livelihood means. The model village that TCE aspires to establish turned water positive with the installation of

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**The focus for FY 2018-19 will be towards responding to customer needs especially on the OPEX front – service offerings with focus on capacity expansions, improvements, digitisation and automation with sensors and IIoT adoption.** 99

solar-powered pumps and group wells, which will help irrigate a hostile terrain. The School on Wheels programme continues to offer bridge schooling to children of construction workers. This programme will be scaled to provide more children with access to basic schooling with a mobile classroom. TCE's engineering skills are put to use to rebuild disaster afflicted areas in the country. TCE's employees contributed to about 9371 hours of corporate volunteering for the benefit of society. Each year the Company plans spend of 2% of its profits on various CSR activities.

The Tata group's approach towards building a pioneering and socially responsible business enterprise has not

just contributed to TCE's longevity but has also contributed towards building a brand, which is trusted by millions. TCE is strongly linked to the value systems of the Tata group. It is committed to its customers and to the community it serves. It is this focus that has kept the Company going for over five decades. This ethos will be the backbone of the Company's operations while it continues to foray into emerging service requirements and delivery models. FY 2018-19, TCE hopes to work closely with other Tata group companies, and be part of their growth story. I am sure 2019 will be yet another landmark year for TCE in terms of all round growth.

Sincerely yours,  
**Amit Sharma**

# Our strategic framework

Rhythm is an initiative to drive transformation within the Company to achieve organisational goals. TCE adopted the business process engineering framework in 2013, in order to drive long-term process improvements across the Company. Based on the Company's short and medium-term objectives, which eventually enable long-term goal achievement, TCE has implemented Rhythm in a phased manner.

Rhythm 2.0 was adopted in 2016, and it has been instrumental in driving organisational transformation including changing the organisation structure, increasing international footprint, digitisation of processes and improved customer service.

Over the last fiscal, TCE carried out several initiatives towards achieving the broad goals. The Rhythm 2.0 strategy took a four-pronged approach – Sales Excellence, Delivery Excellence, Technology Excellence and People Excellence. These four pillars addressed key broad areas pertaining to Customer, Collaboration and Capital (Financial & Human).



# Performance on Rhythm 2.0 pillars

## Customer



## Sales

### Key objective

**Retain market leadership in key sectors in domestic markets**  
**Focus on improving profitability**  
**Trusted advisor to marquee clients**

### Our measures and performance

**56%** in domestic revenues, key projects in smart cities, 'Make in India' focus  
**Contribution to nation-building** through projects in Smart City Mission and space programme  
**19.68%** of sales revenue contributed by OPEX-related services and IIoT solutions  
**40%** of earnings from large clients  
**ENR** global ranking at 134

## Collaboration



### Key objective

**Consortiums, partnerships and joint bids to increase revenue**  
**Win complex and large deals**  
**Penetration in focussed geographies/sectors**

### Our measures and performance

**16.3%** new orders received through consortiums and partnerships  
**41%** of new orders were large and complex projects  
**Bagged prestigious projects** in the nuclear energy and space-related projects  
 Working on several projects funded by international funding agencies such as the **Asian Development Bank (ADB)**, the **Japan International Cooperation Agency (JICA)** and the **World Bank**  
**Internal collaboration** through cross-selling of services across BUs provided large deals  
 Involved in **14 Smart City** projects and **49 city-upgrade projects** through consortiums  
**Increased revenue** through DEC's for clients in Europe, the Middle East and the US

## Capital



### Key objective

**Focus on key financial metrics to ensure healthy working capital and cash flow**

### Our measures and performance

**Highest ever gross revenue** growth of 12% over previous year  
**34.3%** rise in PBT due to focus on productivity, capital planning and human capital planning  
**Reduction in locked working capital** and increase in revenue productivity of 21% YoY

# Performance on Rhythm 2.0 pillars (contd.)



## Delivery

**Key objective**

**Delivery excellence, based on customer centricity quality and focus on value engineering**

**Our measures and performance**

**Improved Customer Feedback Index** through process efficiencies in customer feedback management

TCE in **favourable metrics in comparison to competitors** across a third-party review of customer perception

**Enhanced risk and compliance** with high-level review for value projects

## Customer



## Collaboration



**Key objective**

**Build long-term relationships through delivery excellence**

**Our measures and performance**

Established branch office in **Europe and the Middle East**

**Crowd-sourcing of ideas** for process improvement via iThink yielded 351 suggestions

## Capital



**Key objective**

**Ensure bottom line focus with IT systems and tools for providing cost-efficient delivery systems**

**Leverage existing capabilities in handling complex and multi-pronged projects**

**Our measures and performance**

**WoW process improvements** in operations extended across BUs

**Stage-gate based delivery** and billing process to manage revenue flows



## Technology

**Key objective**

**Enhance customer connect and focus on innovative solutions to meet their unique demands and needs**

**Our measures and performance**

**7 technology offerings** developed for customers  
**46 value additions** provided  
 ~₹ **60 crores of cost savings** for customers due to value additions



## People

**Key objective**

**Train and engage workforce in emerging technologies relevant to service various stages in asset lifecycle**

**Our measures and performance**

**Digital tools and IIoT training**  
**Training man-days at 16.2 per employee** engaged in client projects  
**23.3%** rise in **training spends** over previous year  
**86%** growth in **total employees** undergoing training over previous year  
**52 programmes** with **3,185 man-days** training in new technologies

**Key objective**

**Collaborate in key technology areas for adding value to client process and offer end-to-end services for client needs**

**Our measures and performance**

**Portals and query-based systems** introduced for efficient Knowledge Management (KM)  
 Helped **virtual teams** work together cohesively

**Key objective**

**Train and engage workforce in Project Management**

**Our measures and performance**

Introduced **customised Project Management Certification** programme (PROMPT) for PMP certification  
**Innovision Contest and iThink platforms** captured ideas and innovative practices to enhance customer delight

**Key objective**

**Ramp up existing knowledge management IT systems to capture and share domain knowledge internally**

**Our measures and performance**

**158 automated systems** introduced to manage knowledge  
**29,600 man hours savings** through knowledge management  
**12 publications** in reputed technical journals

**Key objective**

**Enhance human capital focus and build a creative and engaged workforce**

**Our measures and performance**

Employee utilisation at **82.6%**  
 Tap opportunities for value additions and innovations

# FY 2018-19 strategy planning

## Rhythm 2.2

In FY 2018-19, TCE will focus on Rhythm 2.2 with a continued focus towards achieving the next level of maturity in across focus areas namely Technology, Operation, Sales and People Excellence.

## Goals

Global Top 100

Ranked among the global top 100 in its domain

50:50

Attain international-domestic revenue mix of 50:50

## Strategy deployment plan

### TARGET AREAS

#### FINANCIAL

- > Acquire business in new sectors/services, with 50% share from international markets
- > Achieve profitable growth with working capital optimisation
- > Win large deals
- > Form consortiums and partnerships

#### CUSTOMER

- > Offer cross-business and integrated solutions across customer asset lifecycle
- > Enhance customer engagement and satisfaction
- > Trusted advisor to strategic/key clients

#### PROCESS

- > Strengthen key processes and enhance offerings through operational, sales and technology excellence
- > Improve productivity and optimise cost

#### LEARNING/PEOPLE

- > Attract, retain and develop talent and prepare for the workplace of the future
- > Be a responsible member of society

75:25

Develop as trusted advisor to strategic clients and preferred partners (75:25) ratio

30%

Realise asset lifecycle services footprint of minimum 30% OPEX

PILLARS FOR STRATEGY IMPLEMENTATION

**SALES EXCELLENCE**

- > Customer relationships and partnerships
- > Large deals, relationship-based offerings
- > New avenues and clients for growth
- > Improved ENR global ranking

**OPERATIONAL EXCELLENCE**

- > Customer delight
- > Excellence in operations, focus on quality, contracts, risk and compliance management, digital delivery, efficiency in capital, resource utilisation

**TECHNOLOGY EXCELLENCE**

- > New technology offerings and IIoT
- > Value addition, innovation
- > Knowledge Management (KM) and digitisation

**PEOPLE EXCELLENCE**

- > Leadership building
- > Reskilling and training
- > Talent management
- > Workforce agility

**WAY OF WORKING (WOW)**

- > Process improvements across all pillars, rollout of next phase in systems and processes

# Our risk management strategy

TCE is committed to a robust risk management programme to ensure sustained growth and protection of the interests of its various stakeholders.

The Company's risk management approach is planned centrally and implemented across the organisation. The essence of the approach is to proactively identify and register risks, take measures to mitigate them or convert them into opportunities.

The Company's risk approach is a continuously evolving process and will eventually lead to creation of an enterprise-wide risk framework. TCE has adopted a Risk Management (RM) Policy, which is in line with the current industry best practices to address the challenges in the engineering consulting business.

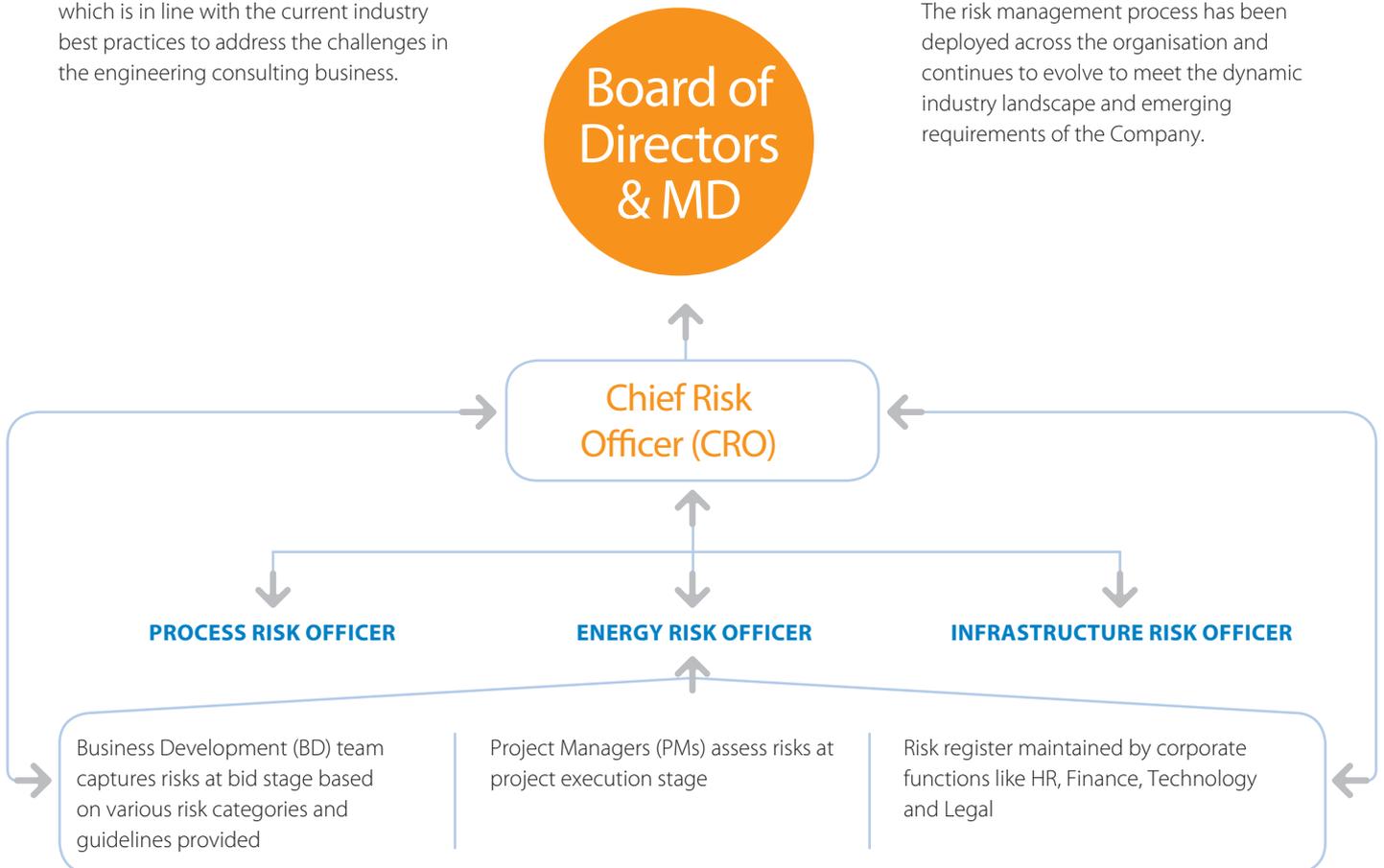
The risk framework is planned and reviewed centrally while the deployment is through a decentralised structure comprising Risk Officer (RO) for each sector. This approach helps to achieve accountability across the hierarchy and embed the risk process in the day-to-day business activities.

Further, a centralised RM system helps capture risk data in an integrated form for various projects.

The automated system complete with a risk portal facilitates risk reviews, risk mitigation and monitoring, risk reporting and other organisation-wide dashboards.

The findings and the risk mitigation strategies are presented to the Corporate Management Committee and the Audit Risk and Management Committee of the Board by the Enterprise Risk Management (ERM) team regularly.

The risk management process has been deployed across the organisation and continues to evolve to meet the dynamic industry landscape and emerging requirements of the Company.



# Principal risks and uncertainties



## Strategic risks

Material matters	What are the risks?	How TCE mitigates risks?
<b>Challenging macro-economic environment</b>	Lower capital investments and fewer new projects	<ul style="list-style-type: none"> <li>&gt; Balanced market focus with domestic and relevant international markets</li> <li>&gt; Collaborated with partners in key segments</li> <li>&gt; Offered basket of services in the OPEX-related investments of clients</li> <li>&gt; Worked in brownfield conditions providing modernisation and asset sweating solutions</li> </ul>
<b>Evolving regulatory landscape</b>	Impact on operations due to compliance and regulatory requirements  Protectionist policies impacting project viability	<ul style="list-style-type: none"> <li>&gt; Dedicated team tracks and ensures fulfilment of all major external compliances; status reported periodically to the Board</li> <li>&gt; Value engineering solutions as a differentiator</li> </ul>



## Financial risks

Material Matters	What are the risks?	How TCE mitigates risks?
<b>Counterparty credit and performance</b>	Impact on cash flow due to Unbilled Revenue (UBR) and high debtor levels  Competitive pricing pressure  Change of scope & scope Creep	<ul style="list-style-type: none"> <li>&gt; Projected cash flows evaluated at bid stage</li> <li>&gt; Regular monitoring of risks to projects</li> <li>&gt; Focus on billing and collections as per milestone</li> <li>&gt; Risk review based pricing decisions</li> <li>&gt; Customised delivery mechanisms for enhanced profitability</li> <li>&gt; Strengthened internal processes and knowledge management systems</li> <li>&gt; High risk score projects reviewed at Apex level</li> </ul>

## Principal risks and uncertainties (contd.)



### Operational risks

Material matters	What are the risks?	How TCE mitigates risks?
<b>Shifts in technology, project demands</b>	<p>Increasing automation, demand for advanced technology</p> <p>Challenging project conditions</p>	<ul style="list-style-type: none"> <li>&gt; Adoption of high-end IT suites</li> <li>&gt; Focused training for manpower in technology tools</li> <li>&gt; Customised PMP Certification programme for project management</li> </ul>
<b>Contractual demands and liability</b>	<p>Contractual liabilities</p> <p>On-site safety liability</p> <p>Stringent requirements in internationally funded projects</p>	<ul style="list-style-type: none"> <li>&gt; Introduced contract management system</li> <li>&gt; Ramped up on-site safety</li> <li>&gt; Introduced a safety portal, Suraksha, to share safety practices across the Company</li> <li>&gt; Established processes for all contractors and vendors to operate at the site</li> </ul>
<b>Pressure due to stringent cost budgets and tight schedules</b>	<p>Asset sweating by customers</p> <p>Delay in project closure</p> <p>Delayed progression of projects, especially in the case of complex projects</p>	<ul style="list-style-type: none"> <li>&gt; Introduced project management systems for enhanced project delivery</li> <li>&gt; Infused predictability in projects by investing in 3D, 4D and 5D suites</li> <li>&gt; Leveraged multi-disciplinary talent across business segments</li> </ul>



## Sustainable development

Material matters	What are the risks?	How TCE mitigates risks?
<p><b>Employee engagement</b></p>	<p>Competitive poaching of niche talent</p> <p>Redundancy of existing skills due to changing customer requirements impacting manpower utilisation</p>	<ul style="list-style-type: none"> <li>&gt; Inclusive growth and employee engagement</li> <li>&gt; Workforce requirement and skill mapping for the long and short-term identified</li> <li>&gt; Re-skilling of employees for deployment in new services</li> <li>&gt; Training and development in digital technologies</li> </ul>
<p><b>Community building and environment</b></p>	<p>Continued success of operations and future projects are in part dependent on healthy relationship with the respective local communities and stakeholders</p>	<ul style="list-style-type: none"> <li>&gt; CSR strategy is to undertake initiatives which focus on four aspects: infrastructure development, healthcare, education and sustainable development</li> <li>&gt; Advocate environment-friendly solutions, green building practices, zero discharge solutions, renewable energy and energy efficient solutions</li> <li>&gt; Helped reduced costs by adopting innovative engineering to preserve natural resources and ensuring sustainable development</li> </ul>

# Our value creation model

At TCE, creating sustained value for all stakeholders is at the core of its strategy. The Company's value creation model is designed to ensure that strong knowledge base is leveraged to positively impact stakeholders and the impact of its capitals benefit various segments. TCE has provided a combination of quantitative and qualitative information of the six capitals that are deployed in the operations.

## The Six Capitals

### FINANCIAL

Comprises of funds we raise, our earnings, the overall revenue generated

### MANUFACTURED

Project design, engineering, construction, maintenance and management stages when the Company uses materials, equipment, tools and technologies

### INTELLECTUAL

Innovations around technologies for increasing project efficiencies and advances in digital technologies, preparing for the era of Industrial Internet of Things (IIoT)

### HUMAN

Collective skills, knowledge and capabilities of employees and contract staff are at the heart of our business operations

### NATURAL

Ensures all our project and client activities, have minimal impacts on the environment, optimising the use of natural resources at project sites

### SOCIAL

Includes knowledge sharing, complying with regulations, providing financial and technical support and ensuring employee involvement

## Inputs



### FINANCING

- > Equity
- > Debt



### MATERIALS, TOOLS & EQUIPMENT

- > Design Suite
- > Application licences
- > Hardware



### TECHNOLOGY & MANAGEMENT INSIGHTS

- > Design Engineering
- > Project Management Consultancy
- > OPEX optimisation
- > Knowledge management



### RAW MATERIAL

Utilities energy and water, among others



### EMPLOYEES

- > For engineering solutions
- > At project sites
- > Shared services



### SUPPLIERS & VENDORS

## Sectors



### Infrastructure

Plans and designs townships, cities, waterways and water distribution systems, transport and environment services

Please refer **Page 38**



### Energy

Track record of six decades in concept to commissioning solutions in every aspect of the sector

Please refer **Page 41**



### Process

Focus on chemical sector and steel, metal and mining projects with services including design engineering, material handling and project management services

Please refer **Page 44**



### Integrated Solutions

Solutions ranging from engineering studies and design engineering, Project Management Consultancy and Construction Management, services in Advanced Technologies and OPEX services

### STRATEGIC FOCUS AREAS

- > Achieve profitable growth with working capital optimisation
- > Offer cross-business and integrated solutions
- > Enhance key processes through delivery, sales and technology excellence
- > Be a responsible member of the society



## Outcomes

### CUSTOMERS

- > Optimisation of service quality
- > Process and cost efficiency
- > Innovation and value additions
- > Safety and regulatory compliance

Please refer **Page 55** for details on 'Customer-centricity'

### SOCIETY

- > Development and progress of the nation
- > Sustainable development through engineering consultancy
- > Impact lives through utilities like water, energy and waste management
- > Responsible procurement and use of non-renewable resources
- > ₹1.06 crores CSR spends

Please refer **Page 54** for details on 'Inclusive Growth'

### EMPLOYEES

2,730 Employees

Please refer **Page 53** for details on 'Employee Well-being'

### RETAILERS & VENDORS

Business partners | Retailers | Vendors | Government /Quasi Govt. bodies | International funding agencies | NGOs.

Please refer **Page 53 & 54** for details on 'Stakeholder management' and 'Human rights'

### GOVERNMENT

- > ₹35 crores contribution to the exchequer
- > Capital investment projects help drive 'Make in India' aspiration

Please refer **Page 54** for details on 'Policy Advocacy'

# Our integrated approach: FY 2017-18

Financial Capital		Manufactured Capital *	
<b>REVENUE</b> (₹ in crore) <b>649</b>	<b>SALES REVENUE BY SEGMENT (%)</b>  Infrastructure: 36 Energy: 25 Process: 39	<b>INVESTMENT IN TECHNOLOGY TOOLS (SOFTWARE LICENCES AND SYSTEMS)</b> (₹ in crore) <b>22</b>	<b>PAPER USAGE</b> (Avg. cost of paper [in ₹] usage per employee across 7 locations) <b>3,626</b>
<b>NET WORKING CAPITAL</b> (₹ in crore) <b>210</b>		*TCE is a knowledge-based service provider. The manufacturing capital involves design suite licences, hardware, etc. The Company has several partnership agreements with design suite providers.	
<b>NEW BUSINESSES/ORDER BOOK VALUE</b> (₹ in crore) <b>879</b>		<b>21%</b> Improvement in revenue productivity over the previous year	

Intellectual Capital					
<b>INNOVATIONS SUPPORTED*</b> (cases) <b>3</b>	<b>PATENTS FILED/PENDING AND GRANTED</b> (number) 1 Filed 1 Granted	<b>VALUE ENGINEERING SOLUTIONS PROVIDED**</b> (₹ in crore) <b>46</b> Value additions	<b>201</b> <b>NEW DOCUMENTS GENERATED</b>		
<b>21</b> <b>TECHNICAL PAPER PUBLISHED (EXTERNAL)</b>	<b>50</b> <b>TECHNICAL CASE STUDIES IN PUBLIC DOMAIN</b>	<b>63</b> <b>SUBJECT MATTER EXPERTS REPRESENT TCE IN BIS COMMITTEES</b>	<b>826</b> <b>EXISTING STANDARD DOCUMENTS UPDATED</b>	<b>37</b> <b>NEW AUTOMATION PROGRAMMES ADDED</b>	<b>158</b> <b>AUTOMATION PROGRAMMES AVAILABLE IN RHYTHM PORTAL</b>

## Human Capital

<b>UTILISATION OF PEOPLE (%)</b> <p>82</p>	<b>DIVERSITY (%)</b>  <p>Women</p> <p>14</p>  <p>Men</p> <p>86</p>
<b>TRAINING MAN-DAYS PER EMPLOYEE (days)</b> <p>16.2</p>	
<b>SAFETY INDEX SCORE</b> Safety at site: <p>4.21</p> Safety in office: <p>93.84</p>	

## Natural Capital

<b>DRINKING WATER PROVISIONS (number)</b> Ongoing <p>20</p> Million people	<p>7</p> States
<b>ENERGY CONSUMPTION (kilo units)</b> TCE Officers <p>3,865</p>	
<b>INNOVATIVE PROJECTS FOR NATURAL RESOURCE CONSERVATION (number)</b> Namami Gange project to impact: <b>58 towns</b> on the banks of Ganga <b>21.5 million</b> people to be benefitted	

## Social and Relationship Capital

<b>CONTRIBUTION TO THE EXCHEQUER (₹ in crore)</b> <p>35</p>	<b>EMPLOYEE VOLUNTEERS (Number of people)</b> <p>649</p>	<b>CSR EXPENSES (₹ in crore)</b> <p>1.06</p>
<b>CORPORATE VOLUNTEERING MANHOURS</b> <p>9,371.25</p>	<b>1. HEALTH</b> > Blood donation camps > Contribution to Swachh Bharat Abhiyan > Electronic waste awareness programmes	<b>2. EDUCATION</b> > 1,400 youngsters benefitted through career counselling > 200 children of construction workers schooled
	<b>3. SUSTAINABLE LIVELIHOOD</b> > 55 families benefitted through floriculture and horticulture	<b>4. INFRASTRUCTURE</b> > 350 people provided with water for drinking and irrigation > Engineering solutions for disaster afflicted regions of Uttarakhand

## Design to Delivery

# 150 years of the Tata group –

A pioneering enterprise serving the interests of the community



The 150<sup>th</sup> anniversary of the Tata group, is a celebration of a visionary, Jamshetji Tata, who was far ahead of his times. He has left behind a legacy — of pioneering businesses and social institutions, that follow the core principle of giving back to society.





Tata Consulting Engineers (TCE) is an offshoot of this pioneering spirit and has contributed to the nation and society by helping its stakeholders realise their visions and dreams. From a JV entity in Tata-Ebasco, to a division of the Tata Group and then as an independent entity, a subsidiary of Tata Sons, TCE has contributed to the Tata cause.

TCE was perhaps the first engineering consultant in the early 1960s, established with a vision to bring indigenous power generation in India to fuel the country's growth. TCE was also a major player involved in India's nuclear energy generation working with the Directorate of Atomic Energy (DAE). The Company is involved in almost 74% of the nuclear energy generated in India and 30-35% of all energy generated in the country.

Over the years, the Company has grown in stature, expanding to help a larger stakeholder map. Working closely with other Tata companies, Governments in developing countries, international enterprises, international funding agencies, etc., the Company has been the conduit to help realise the dreams and larger vision of its stakeholders.

Bringing light into the homes in the African continent, potable water to the homes of people in about seven states in India, nation-building and development projects, value additions to enterprises are some of the dreams that have been realised, through TCE.

Today, with its diversified services, the Company engages in projects across the world and has built capabilities that enable

successful collaborations with global partners. Sound design advice, robust project management and consultancy, holistic knowledge of the evolving market trends and promise of ethical practices are TCE's competitive advantages.

As an important division of the Tata group, TCE has successfully leveraged its capabilities to create sustainable and environmentally sound engineering solutions. Right from retrofitting elements to make plant assets sustainable, to urban planning for optimising natural resources, to ensuring environment-friendly development of industry, the Company is heading India and some parts of the world through responsible engineering.

## Enriching lives

One of the core goals of TCE's operations is to create substantial difference in the lives of its stakeholders. Hence, the Company consistently persists and enables its clients to empower communities and provide them with better quality life.

Over the years, TCE has championed many projects that have led to creation of value, which goes beyond business growth and financial stability for its clients.



### CASE STUDY

## Helping provide specialised medical services



### DESIGN TO DELIVERY

TCE helped as engineering consultants in building a Medical Centre in Chhattisgarh for a renowned Indian multi-national organisation. The state-of-art facility is a speciality hospital for the treatment of cancer and is built on an area of about 50 acres. TCE provided concept to commissioning services covering architecture, structural engineering, Mechanical, Electrical and Plumbing (MEP) engineering and Project Management services.



### INNOVATIVE EDGE

The building plan was made on 'Safety in Design' (SiD) principles and completely developed on 3D platforms. The virtual model was used for clash detections of all the utilities on the 3D visualisation model framed from REVIT software. This brought the review and decision-making to the design stage, eliminating surprise at the construction stage.

TCE provided design and detailed engineering for specialised hospital services in procurement, commissioning support for medical equipment, IT infrastructure and hospital management systems.

The 170-bed hospital facility is in the process of LEED certification for Gold rating. The facility is an Intelligent building with Integrated Building Management Systems.



### IMPROVING LIVES

There are nearly 75,000 cancer patients in this state. The existing infrastructure supports about 40,000\* patients annually. This implies that ~35,000 to 40,000 patients are un-served or avail treatment in some other cities. This 170-bed facility, with radiation oncology, will benefit by making treatments available for the people, within the state.



### RECOGNITION RECEIVED

The Medical Centre was inaugurated by the Chief Minister. TCE received a memento as symbol of appreciation for its contribution to the project from the client.



### CASE STUDY

## Sustainable solutions for the future



### DESIGN TO DELIVERY

TCE is the front-runner in supporting any Government's futuristic infrastructure and development projects. One such project was the Phase I of the Madhya Pradesh Urban Service Improvement Project funded by Asian Development Bank (ADB).

The Company as lead partners in a consortium worked towards achieving water supply systems in 63 towns and sewerage systems in two towns of Madhya Pradesh. Right from overcoming shortcomings in Detailed Project Reports (DPRs) prepared by local consultants, to ensuring process quality and accuracy, TCE ensured that the project is built for the future.



### IMPROVING LIVES

The direct impact of the project was significant

- > Directly and indirectly improving lives of around 3,00,000 households
- > 25% of which are vulnerable female-headed households living below the poverty line
- > Proposed components were redesigned to minimise environmental and resettlement impacts
- > Access to uninterrupted water supply to the households



### INNOVATIVE EDGE

The infrastructure capability was optimised by clubbing Intake Well with an existing scheme and the relocation of Intake Well ensured continuous availability of water.

The Company suggested re-routing of pipelines to address right of way (ROW) issues and optimise the pipeline length. The proposed design changes and optimisation of pipe specifications resulted in net savings of about ₹17.87 crores.

A Programmable Logic Controller (PLC) scheme was developed with intelligent field devices. This addition generated dashboards on operations and instances of deviations from water quality, residual pressure and failure to meet targeted non-revenue water (NRW).

The project was further integrated with Geographical Information System (GIS) for smart management of water supply.



### LONG-TERM VALUE

The value engineering solutions strengthened the relationship with the client. TCE is being retained for the Phase II of the project.



### RECOGNITION RECEIVED

An appreciation was received from the international funding agency (ADB), which augurs well for TCE. The agency recognises the Company as an able partner in complex urban development projects. The recognition also reiterated the high level of competence in overall technical excellence and state-of-the-art IIoT readiness implemented by TCE.

## Enriching businesses

TCE delivers solutions that go beyond the brief. It creates long-term and value accretive results that have a positive, all-round impact. The Company's expertise and robust capabilities enables successful project execution and long-standing client relationships.

### CASE STUDY

#### Collaborating to ensure success



##### DESIGN TO DELIVERY

A steel major had a requirement for 35 MW captive power generation using steam from two boilers. TCE's SMM and Energy sectors worked together to accomplish a challenging assignment by generating captive power from two Coke Dry Quenching (CDQ) boilers. However, the Company also had another boiler, which could add 5 MW additional power, thus cumulatively contributing to 40 MWs of captive power. TCE's expert team delivered value addition by leveraging existing assets.



##### INNOVATIVE EDGE

The main challenge to accomplish the total net generation of 40 MW was the varying pressure of the steam from the boilers. The distance of the existing boiler from proposed boilers posed a major challenge as it required additional infrastructure to connect. However, TCE looked for an alternative route that would be cost-effective and save time. The solution was designed to enable the steam to flow from existing lower pressure boilers to the boilers with higher pressure (CDQ 10 and 11). TCE proposed a pressure relief valve cascaded control system to ensure appropriate mixing of steam from the boilers. A dynamic study to justify this solution and convince the client was created and presented. This unique design allowed creating variable set points for pressure at various nodes by online cascade control.



##### LONG-TERM VALUE

TCE's unique approach helped the client leverage the steam from the old boilers to generate additional 5 MW of energy and contributed to additional revenue of ₹13 crores per annum.

# Enabling process excellence

TCE's technology capabilities have helped it cater a diverse set of global clientele. The expert design engineering skills combined with an integrated service model helps the Company deliver on complex projects and create cost-effective and environment-friendly solutions.

## CASE STUDY

### Improving efficiency of existing assets



#### DESIGN TO DELIVERY

At one of our client's brownfield project, the Coke Dry Quenching (CDQ) chamber required construction of new conveyor tunnel passing below existing rail track. The initial plan was to provide steel girders below the track and construct the conveyor tunnel. However, this would have resulted in a scheduled completion period of five months including two months shutdown of the rail track. TCE, as lead project management consultancy planned and executed a more efficient solution that resulted savings in terms of both time and cost.



#### INNOVATIVE EDGE

Working collaboratively with the client, TCE's project management and consultancy services team proposed an alternate design with rail track support from top by constructing Reinforced Cement Concrete (RCC) beam directly on top of the tunnel. This simplified design eliminated any requirement for heavy civil works below the track and also allowed completing the task ahead of schedule with rail track shutdown for less than one month.



#### LONG-TERM VALUE

The solution resulted in savings of capital expenditure (capex) and additional revenue generation due to overall schedule compression, amounting to a cumulative value generation around ₹13.5 crores.

## Industry review



# Infrastructure

TCE's role in the Infrastructure industry is to serve as a key player in contributing to the growth of the nation and bringing about improved quality of life to the society, through the projects it delivers. Over the years, the Company has successfully managed complex engineering projects across the infrastructure spectrum.



The business growth was driven by domestic markets, in urban development and water infrastructure projects. Infrastructure as a sector is witnessing healthy growth in the domestic market with the main spender being the Government, funding and municipal bodies.

The impetus to grow in FY2017-18 came on the back of the Government of India's investments in urban development and the Smart City project. The Company successfully positioned itself as a market leader in the Smart City development initiative, serving as lead consultant for the development of 13 cities in collaboration with several partners. TCE today is the single largest consultant with capabilities to provide end-to-end consultancy for Smart Cities in India. With the Government still to earmark more smart cities for development, there are new opportunities in this industry.

In several of the Smart City projects, such as Raipur, the Company is driving commitment to sustainable living through electric vehicles for public transport, battery

charging and swiping stations, solar panels for energy, state-of-the-art design of the city's central command and control centre to manage townships efficiently and so on. Another project of national importance is the Clean Ganga Mission, which helps preserve and de-pollute India's most revered river, the Ganges. The effort to address pollution will be carried out in 150 towns where in Ganga basin

The Water and Waste Management sub-sector continued to deliver on several large-scale projects running concurrently across the country. The Water management and Waste management projects are primarily driven by internationally funded agencies. However, working with such funding agencies calls for high levels of standards, documentation and procedures. TCE has expertise in working with Indian and international standards. The Company is currently managing water and waste management projects across seven states – Delhi, Madhya Pradesh, Jharkhand, Karnataka, Uttarakhand, Gujarat and Bihar – in the country.



## Industry review (Infrastructure)

A unique feature of the projects in the Infrastructure industry is that they involve both design and site project management services. TCE with its integrated 'Concept to Commissioning' approach is uniquely positioned to provide differentiated services in this industry. TCE is amongst the few companies that provides both design and project site services under the same roof; in fact, it is a pioneer in this segment. With safety as a key issue, an integrated design and site supervision approach ensures minimal gaps and iterations between the concept followed by design and the actual site execution.

The Infrastructure industry projects are large and complex with long project gestation timelines. The Company works with the Central and State

Governments, urban local bodies and Government-appointed special purpose vehicles (SPV) and several consortium partners. While we see continued focus and growth, the sector has its own challenges with respect to long project cycles marred by delays, lowest price bidding approach as opposed to innovative solutions and services and payment milestones leaning towards the latter part of the project. As a result projects in this industry have low margins, higher locked capital and delayed payment terms. There is a large dependency on CAPEX spends by the Government and on the strength of development funding by international funding agencies.

TCE's Infrastructure sector's contribution to - revenues was at 36%.

### FOR SUSTAINED VALUE CREATION

- > Consolidate Smart City business in India
- > Explore growth opportunities in water infrastructure projects across Africa
- > Ensure service quality by placing employees in client locations
- > Maintain growth momentum in India through OPEX services, along with CAPEX projects

### CHALLENGES

- > Overcome delivery bottlenecks
- > High locked working capital and delayed payment milestones
- > Project management related hurdles
- > Evolving market dynamics
- > Delay in processes and long-gestation periods
- > Land availability and stakeholder decision-making

### GROWTH MARKETS

- > India
- > Africa

## **D** Design to delivery **MAKE IN INDIA**

In the last fiscal year, TCE provided architectural and design concept to site supervision and commissioning engineering services to the Tata Boeing combined facility for the manufacture of Boeing AH64 Apache helicopter fuselages in India. The project was completed three months ahead of the scheduled time and the state-of-the-art plant is expected to commence production. TCE has successfully rendered its consultancy to contribute to the Government of India's thrust to Make in India, creating value for the country.

## Industry review



# Energy

TCE began its journey as an engineering consultant for the power sector, working with the Tata Electric Companies. The idea was to fuel India's industrial growth by providing engineering and project management services for building power plants. Today, TCE continues to be one of the leading consultants in this sector with a broad portfolio of solutions that include the entire spectrum of power generation and distribution.



## Industry review (Energy)

TCE's involvement in the Energy industry includes new builds in thermal, renewable, nuclear, hydro and transmission and distribution (T&D) and extends to plant renovation, modernisation and performance improvement projects in existing facilities.

In the last fiscal, the Company's Energy sector streamlined internal processes, adopted standardisation principles and project efficiencies to sustain the business in a highly competitive business environment.

The Energy sector contributed to 25% of total TCE revenue share in FY 2017-18 with growth coming from the renewable energy projects and OPEX services. The slower growth during the last financial year is expected to pick up in FY 2018-19 with new opportunities in renewable, hydro, T&D and OPEX services.

### SUB-SECTOR OVERVIEW

#### THERMAL ENERGY

Private sector participation in the Indian thermal energy industry witnessed steep decline, thereby limiting the capex opportunities in power generation. Climate change concerns across the globe have significantly impacted investment in coal-based power generation. However, TCE was able to secure opportunities in thermal power due to high levels of regulatory compliance requirements in certain overseas regions with abundance of coal. TCE's collaborative efforts with Korean EPC players continued its run in FY 2017-18 predominantly in gas-based power plants in the Middle East and South East Asia. However, the need for clean power is a driving factor that requires a conscious shift to alternative resources of power generation. Limited opportunities still lie in captive power generation for industrial plants. As value addition, the Company has currently set up Dedicated Engineering Centres (DECs) for two major international customers for various thermal power projects.

#### RENEWABLE ENERGY

The renewable sector in India recorded significant capacity addition of around 11.8 GW in FY 2017-18. From an engineering perspective, wind and solar PV plants have more standardised and modularised OEM equipment with lesser focus on process and plant design. The Company's current engagement in solar

is towards preparation of energy yield assessment studies, project reports, OE and DE services and due diligence studies for the Developer and EPC. Wind projects predominantly comprise foundation design for wind turbine generators and pre-bid services, among others. TCE plans to focus on areas such as modularisation of plant layouts, wind resource assessment, wind OE services, expanding overseas segment and so on to provide the value engineering required for this sector. It is currently working on a 300 MW solar project in Bhadla Solar Park in Rajasthan, 250 MW plant in Pavagada, Karnataka and 50 MW solar plant in Egypt for a Middle East Client.

#### HYDRO POWER

With the Indian Government thrust on policy changes and enhanced focus on the North Eastern parts of India, opportunities in hydro power generation is expected to rise in the years ahead. Further, with more renewable energy in the grid, pumped storage hydroelectric projects are expected to play a greater role.

#### NUCLEAR ENERGY

TCE has witnessed growing demand in the nuclear energy industry in India. The Company is a leading player in India's nuclear energy sector with engineering contribution to about 74% of the total nuclear generation capacity in the country. It is currently working on three nuclear power projects being implemented in India. The Indian Government has provided much needed impetus by launching 10 project renewals in nuclear energy. TCE has been short-listed as partner for a US \$20 billion contract for six nuclear reactors to be built in Andhra Pradesh.

#### TRANSMISSION & DISTRIBUTION

Government initiatives in providing last mile connectivity for power transmission and the rural electrification programme in India is a major opportunity for TCE. The Company has strong capabilities in this sub-sector having completed India's longest transmission line in Uttar Pradesh and in challenging environments in Africa. TCE is executing a large project in Jharkhand under the 'Power for All' initiative of the Government of India. The project involves approximately 1500 km of Transmission line and 25 substations at 132kV voltage level. Domestic project in Smart Grid and WAMS is also under

implementation. Dedicated Engineering Centres (DECs) for players in this sub-sector are under execution. Opportunities with Tata Group companies to expand base and reach of services are planned.

### **Project Management services for the Energy sector**

Apart from providing Design and Engineering services in the Energy sector, TCE also provided Project Management Consultancy services. From hydro carbon power plants, wind energy foundation installations to nuclear installations, TCE worked at various sites and provided client focused site supervision, safety and project management solutions that were wide and varied. Safety is a continuous process and the Company's project management and site services teams continue to set benchmarks in managing every aspect of safe practice at sites as complex as nuclear energy installations. Equipped with state-of-the-art tools, TCE has capabilities to offer value to customers through construction simulation. Additionally, the Company uses 4D and 5D tools that bring in more predictability at the planning stage resulting in cost savings while execution at site. This makes a huge difference especially in complex nuclear installations and super-critical power plants.

### **Advanced Technology services in the Energy industry**

The Energy practice has commenced OPEX Services that extend the service scope from concept to commissioning and go beyond to manage plant lifecycle management.

In the OPEX services, impetus for growth through improving economics and regulatory push has opened an array of opportunities for the energy sector. Around 15% of sectoral revenue came from OPEX services and this is expected to double to 30% in the next financial year. TCE has had the early mover advantage in service categories such as technical advisory for environmental compliance, retrofitting of plant upgrades and O&M advisory. With state-of-the-art control systems in the power generation facilities, the need for IIoT-based operations for greater plant efficiency, availability and management of remote diagnostics is the new area of opportunity, that TCE is pursuing. Going forward, IIoT application for power plants, OEM design solutions, re-powering of existing power generation facilities etc. will be the growth drivers in the Energy industry. TCE will be looking at collaborating with local players in the international market to help execute on-site OPEX services and drive sustained value for customers. Developments such as demand for legacy plant upgrades in thermal or decommissioning in nuclear, the Energy sector also built expertise in terms of laser scanning, asset digitisation and migration of legacy control systems into advanced technology-based tools equipped with sensors and controls.

#### **FOR SUSTAINED VALUE CREATION**

- > Explore opportunities in plant engineering for modernisation and environmental compliance in thermal, coal-based projects
- > Grow footprint through OPEX services in India and the Middle East
- > Capitalise re-engineering and modularisation opportunities with large EPC and power generation/OEM companies
- > Strengthening DECs across existing client partner projects

#### **CHALLENGES**

- > Energy sector is very competitive and fragmented
- > Capacity addition in coal-based projects are declining due to climate change concerns and decreasing funding opportunities
- > Gas-based projects in India heavily dependent on imports, making per unit cost of power unsustainable
- > Large capex projects with long-gestation period are not commercially viable
- > Renewable energy projects are subject to protectionist tariffs on equipment and do not require complex engineering

#### **GROWTH MARKETS**

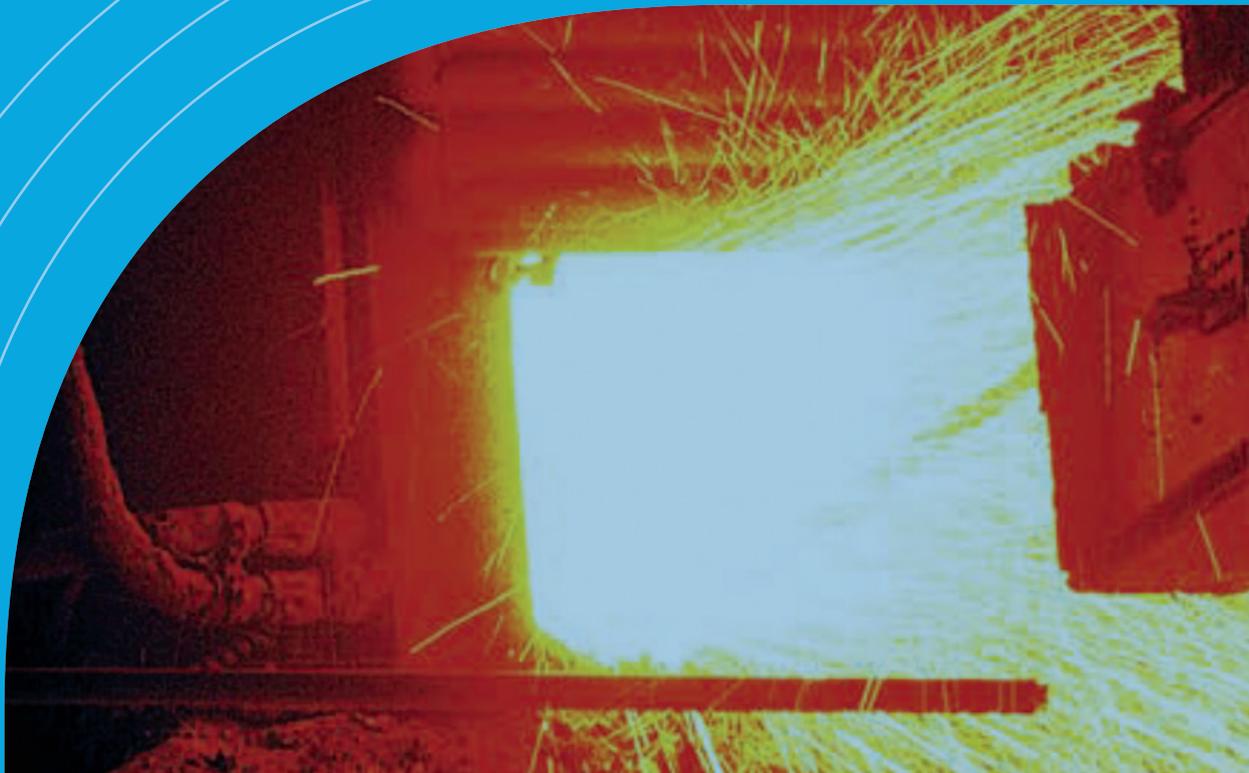
- > India
- > Indonesia
- > Malaysia
- > Philippines
- > Bangladesh
- > Africa
- > Middle East

## Industry review



# Process

TCE's Process industry operates under two key sectors: Process - Steel, Metal and Mining and Process - Chemical. The Company delivers a wide array of OPEX and CAPEX services covering feasibility, design engineering, site supervision, plant engineering services, safety services and project management. As a key differentiator, TCE takes an integrated concept to commissioning approach towards Process industry requirements.



Aligning to the current trend in process industry towards asset sweating, brownfield expansions and digitisation, TCE offers services in OPEX, digitisation and capacity enhancement solutions via directly for projects and through focused, team-based Dedicated Engineering Centres (DECs). These DECs act as an

extension of clients' own teams and ensure optimal, round-the-clock and continuous support to clients' OPEX and plant improvement needs. The Process industry segment contributed to 39% of total TCE revenue share in FY 2017-18.

## Process – Steel, Metal & Mining

TCE's Process – Steel, Metal & Mining (SMM) sector offers core engineering services pertaining to ferrous and non-ferrous metallurgy, mining and beneficiation solutions covering commodities such as iron ore, coal, bauxite, base metals (lead, zinc and copper), diamond and others. TCE's capabilities in the sector span across the project lifecycle from conceptualisation to commissioning and extends to plant engineering.

As a leading player in this sector, TCE provides one-stop solutions for its valued customers across mining and metal sub-sectors. The Company's vast experience in mining services enables it to deliver complex

solutions like plant asset engineering documentation, plant lifecycle management, plant digitisation and simulation, IIoT and related engineering services.

A good mix of OPEX and CAPEX business improved the growth prospects for the Company in this sector both in the domestic and international markets. The Gamsberg mine development is a clear example of value creation for the client through solutions that made a mine, hitherto untapped for the last five decades, viable and the same is under advanced stage of commissioning. In FY 2017-18, the sector's income from international projects doubled over the previous year.



# Industry review (Process – Steel, Metal & Mining)

## PROJECT MANAGEMENT SERVICES IN PROCESS – SMM

Project management services in the mining sub-sector saw the commencement of construction of the most complex mine development project in Gamsberg. TCE's solutions in Process - SMM continued to impress its client with its multi-disciplinary expertise to manage the project overseas. The challenges were compounded due to protectionist and restrictive policies in the region.

## ADVANCED TECHNOLOGY SERVICES IN PROCESS SMM

In FY 2017-18, the Company, under this sector, commenced the digitisation of a global steel major's blast furnace assets. In addition, TCE is helping the client with a process unit revamp, which will be completed by 2020. An outstanding example of digital engineering, the Company is creating value for the

client by creating a digital double of the entire plant asset. Further, process upgrades and modification will be done in a simulated environment such that the upgrades can be finally carried out with minimal plant down time. Further, modifications can also be managed with the digitised assets, saving huge capital costs.

Through digitalisation solutions, the Company has successfully implemented technological know-how to deliver better productivity and predictability in terms of plant performance for many of its clients. Several steel and metal companies are now focusing on high-ROCE projects, which will result in growth opportunities for the sector. TCE hopes to extend its value engineering services for clients' balance sheets and support their growth plans.

### FOR SUSTAINED VALUE CREATION

- > Growing demand across Infrastructure, oil & gas and automobile sectors, thereby increasing demand for steel
- > Explore opportunities in domestic market as India aims to achieve steel capacity build-up of 300 million tonnes per annum by 2030
- > Grow the DEC services and extend support to more clients
- > Digitisation opportunities from existing clients

### CHALLENGES

- > Trade flow disruptions
- > Growing protectionism and regulation
- > Widening workforce skill gaps
- > Declining resource access and quality
- > Faster adoption to the need of international client

### GROWTH MARKETS

- > Asia-Pacific
- > India
- > Europe
- > Middle East
- > Africa
- > Australia

## Process – Chemical

TCE provides engineering solutions in the Process industry covering oil & gas (upstream, midstream and downstream), petrochemicals, fertilisers, cement, speciality chemicals and paints, food and pharmaceuticals and pulp and paper. Over the years, the Company's services in the sector has expanded its footprint in the domestic as well as the international markets. With a strategic approach to nurture long-term alliances and comprehensive customised services, the Company has witnessed success in the Chemical sector.

Owing to a slow investment cycle, the Company increased its footprint in OPEX- based projects. Exclusive services through DECs for international clients, 3D- and 4D-digital solutions and

value-engineering solutions helped ramp up growth in the Chemical sector. With improvement in the crude prices and increased investor confidence, business has seen an uptick, especially in the petrochemicals and speciality chemicals sub-sectors. Investment in the cement sub-sector remains subdued as the installed capacity continued to be higher than demand. However, with higher investment expected in infrastructure projects, cement demand is expected to grow resulting in fresh capex investments in the sub-sector.

The last financial year saw significant improvement in international business for the Company in this sector, which helped improve overall sectoral revenue streams. The Company focused on tuning internal



## Industry review (Process - Chemical)

processes and systems to align to the requirements of its clients' global operations.

### PROJECT MANAGEMENT SERVICES IN PROCESS – CHEMICAL

Cognizant of the hazards involved with all chemical plants, the Company has helped implement projects with safety in-built in design. TCE's plant designs meet and, often, exceed the safety requirements mandated by local regulations.

### ADVANCED TECHNOLOGY SERVICES IN PROCESS – CHEMICAL

With increasing digitalisation and technology adoptions in engineering, construction and plant operations, there is need for a segment of service that caters specially to plant owners and operators to manage their assets on digital platforms. The digital

transformation in operations is a complex one that needs to be managed effectively with minimum disruptions. IIoT is also gaining prominence as it requires process and domain knowledge combined with plant automation systems. All this needs to converge on an engineering consulting platform to take a holistic approach to the digitalisation process. TCE, with its vast experience in the design engineering space for the process industry is an early mover in this new aspect of engineering consulting.

Going forward, opportunities are expected to arise with refineries and chemical plants in the domestic markets and process plants in the overseas markets.

TCE has plans to hire young talent skilled in digital engineering and build virtual delivery models for projects overseas.

#### FOR SUSTAINED VALUE CREATION

- > Build virtual delivery models for projects overseas
- > Strengthening margins
- > Explore opportunities in OPEX services

#### CHALLENGES

- > Investment slowdown in domestic markets
- > Difficult to retain skilled employees

#### GROWTH MARKETS

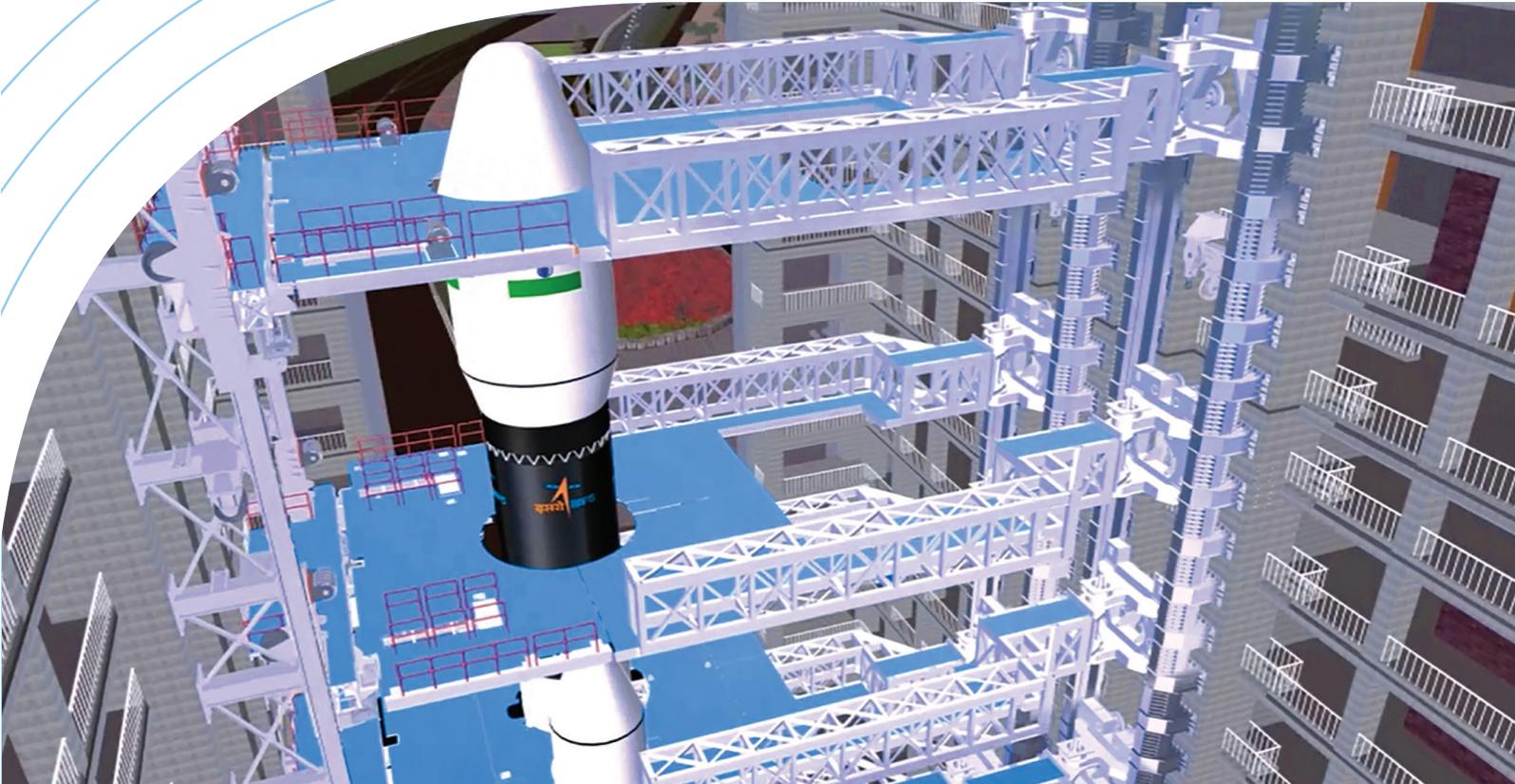
- > Middle East
- > India



### Design to delivery

TCE's client in the Process – Chemical industry had a requirement to install a fully automated Clinkerisation unit of 3900 TPD capacity and upgrade the existing grinding unit from present capacity of 1000 TPD to 2200 TPD. The client appointed TCE as their Engineering Consultants for revalidation of existing Techno Economic Feasibility Report (TEFR).

TCE studied the previously selected sites in view of heavy rains catchment areas around the proposed sites. The unit conducted techno feasibility study of two other sites located around 5 kms away from Site 1. Both sites were critically studied for its catchment areas for maximum rainfall data of 24 hours. Finally, TCE's suggestions on site selection and study of catchment area resulted in saving of around ₹30 crore for the client.



## Design to delivery SPECIAL PROJECTS

In 2017, TCE partnered with the Indian Space Research Organisation (ISRO) when the GSLV Mark III, the highest payload launch vehicle was launched. TCE's design simulation, 3D and 4D engineering, provided the precision and predictability required for the project. Complete plant engineering for manufacture of solid propellant rockets including design of mobile launch pedestal came from the TCE design stable. The project also required handling of explosive material and hence the solutions provided by TCE involved engineering automation of the manufacturing process.

## Driving a responsible business

The Tata value systems are shaped by the philosophy of its founder Jamshetji Tata - 'In a free enterprise, the community is not just another stakeholder in business, but is in fact the very purpose of its existence.' With this in mind, TCE has fostered a culture of active interaction with its stakeholders and its communities.

The Company is cognizant of the impact its business interest can have on the environment and the lives of its communities, clients, vendor partners and end consumers. Hence, the business strategy is aligned with sustainability and building social capital.

The Company has adapted to the evolving needs of the stakeholder communities through new service offerings and adopting new technologies.

Be it in business or in communities, value-added solutions provided by the Company have improved the quality of lives. TCE stands at the forefront of disruptive changes that signals the beginning of a smarter era.

The Company's aim has been to contribute to global priorities and combat economic, environmental and social challenges. Keeping this in mind, TCE has focused on providing services in the area of sustainable technology, energy efficiency, renewable power, water and waste management and smart solutions that improve customers' businesses and enable end-users to lead a sustainable way of life. The Company aims to achieve holistic development of all stakeholders and the society at large.



CORE PRINCIPLES



### Integrity & Accountability

Focus on conducting transparent business based on ethics and principles



### Product Lifecycle Sustainability

Ensure sustainability throughout the product development life-cycle



### Employee Well-Being

Encourage employee well-being as an important goal



### Stakeholder Management

Engage in periodic communication with stakeholders and ensure value creation process addresses every stakeholders' needs



### Human Rights

Respect and promote human rights



### Environment

Protect and invest in efforts to restore the environment



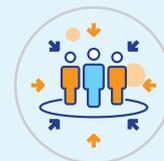
### Policy Advocacy

Participate in public policy decisions in a responsible manner



### Inclusive Growth

Encourage equitable growth and development



### Customer-centric

Engage with customers and consistently create value for them in a responsible manner



## Integrity & Accountability

TCE has a formal structure and set of processes to drive ethical compliances internally and externally. As Principal Ethics Officer, the Managing Director (MD) is responsible for assuring, on behalf of the Company, compliance to the Tata Code of Conduct in both letter and spirit. He is also responsible for assuring integrity of the ethics reporting and monitoring system.

- > Chief Ethics Counsellor reports the status of concerns received, actions completed/in progress, in the management meetings and also at the group level
- > Senior leaders personally monitor actions taken on ethical concerns and ensure that right messages are disseminated
- > Location Ethics Counsellors (LEC) are available at the locations, female LECs are appointed to assist female employees
- > Continuous training and awareness on the Tata Code of Conduct (TCoC) and Prevention of Sexual Harassment (POSH) is managed
- > Supplier contracts and PO carry contacts of ethics counsellors for easy redressal
- > Suppliers and vendors are requested to sign the Anti-Bribery and Corruption (ABAC) declaration.



## Product Lifecycle Sustainability

TCE's product lifecycle is sustained by the concept to commissioning services it offers to customers. Through the service lifecycle, processes are embedded and using measurement tools, analysis of processes are done systematically.

### PRODUCT & PROCESS LIFE CYCLE

Stages	Objective	Systems & metrics
New business & market development	Ensures business continuity & sustainable growth of the organisation	Acquire new businesses aligned to strategic goals, collaborations and partnerships for repeat/long-term business, contract management system, risk analysis, ethics and transparency guidelines
Engineering design & consultancy	To provide comprehensive solutions to customers covering their CAPEX and OPEX needs	SiD principles, Compliance, quality control systems, optimisation of deliverables, customer feedback management, codes, standards & guidelines aligned to regulatory environment, joint bids and collaborations for holistic solutions, Design tools & technologies; sustainable engineering design, environment-friendly solutions, customer feedback management, new service offerings and dedicated solutions to address customer needs
Project management & construction management	Project management and construction management to complete concept to commissioning cycle	Project management certifications, site safety management, safety index/ audits, quality management systems, regulatory compliance, value engineering for project cost optimisation, 3D, 4D, 5D tools for decision-making in a simulated environment, customer satisfaction management, customer complaints and redressal processes



## Employee Well-Being

- > TCE is among the few companies that has the largest, readily deployable, multidisciplinary engineering talent. The Company has put in place extensive processes, tools and resources to continuously upgrade employee's technical, process and system capabilities. Diverse and agile engineering talent is available across the sectors such that clients avail the benefit of a pool of industry-specific domain, technology and process knowledge
- > Key engagement tools: Townhall channel of communication project review meeting in-house newsletter, e-mailers, SMS groups and intranet portal
- > Engagement through TCE day- an annual family event, rewards and recognition programmes, sports day activities and corporate volunteering
- > Formal safety, health and environment policy at the Company level
- > Medical facilities, availability of an in-house medical practitioner, health insurance benefits life cover, accident cover, etc.
- > Employee grievances redressed through policies like Ombudsman process, prevention of sexual harassment policy, whistle blower policy, availability of ethics counsellors, and so on.



## Stakeholder Management

### 1) CLIENTS

- > Client engagement through structured communication such as in-house magazine TCEExpression and Annual Reports, digital communication through social media and Company website
- > Customer meets and visits, office tours, design thinking workshops etc.
- > Proactive meetings by senior leaders, accounts anchors & sales for relationship building
- > Customer engagement is managed through customer feedback forms
- > Customer satisfaction survey and customer connect portal

### 2) PEOPLE

- > Communication managed through focus groups, organised forums, communication meets with management teams etc.
- > Townhalls held in every DC in the first quarter of the year and are addressed by MD and other senior management
- > Senior leaders communicate business performance, business strategy/direction, along with specific targets/plans for company performance
- > Key business directions and decisions are also communicated to employees
- > Employees acknowledged by the customers for outstanding contribution are recognised by the BUs and their achievements are shared
- > Structured rewards and recognition programmes in place
- > Contests and idea generation initiatives such as Innovision contests, iThink, Reflexions, etc ensure engagement Employee training and development

### 3) COMMUNITY

- > Community support initiatives function under the banner of TCEndeavour Volunteering programmes are structured under Tata Engage
- > Affirmative Action policy and the CSR policy ensure engagement and upliftment of the socially backward communities
- > Four focus areas as per MCA recommendations – Infrastructure, Health and Hygiene, Sustainable Livelihood & Education

### 4) INVESTOR

 Please refer **Page 12 & 14**



## Human Rights

Safe guarding and protection of human rights is managed through several policies, structured processes and systems practised across the organisation and through the value chain. The declarations and undertakings are reflected in documents, contracts and some in the public domain at the Company website. The Tata Code of Conduct is followed to uphold human rights principles across stakeholder segments. Other related policies such as Affirmative Action, Prevention of Sexual Harassment and others are also available on the website.



## Policy Advocacy

Senior leaders and specialist engineers are part of industry bodies such as Consulting Engineers' Association of India (CEAI), BIS Committee for codes and standards and on the mailing list of other statutory regulatory bodies of government and other technical committees.

TCE also works with urban local bodies and special purpose vehicles to deliberate and implement city development projects such as India's Smart City Mission.



## Environment

- > Company level Sustainability policy applicable across the organisation and its subsidiary
- > Most of the office spaces follow environment-friendly practices
- > Company reduces the carbon footprint vide its operations by recycling waste paper and implementing energy efficient systems. Further, introduction of digital communication tools and applications aims to reduce travel
- > Value engineering solutions help TCE promote environment-friendly practices among its clients and partners
- > Managed 139 waste management projects for urban local bodies across India
- > Provided digital water management solution for some of the water distribution projects in about seven states in the country
- > Working on the six-year planning for Clean Ganga Mission, which covers the river's course extending 3,000 km across five states and 119 towns
- > Several Smart City projects and urban upgrade projects where TCE is involved as consultant are sterling example of sustainable living
- > The Company has undertaken projects in renewable energy such as solar, wind and waste to energy
- > TCE's OPEX services also address pollution control through plant engineering for asset life cycle management
- > A broad-based in practice approach is taken towards climate change



## Inclusive Growth

- > TCE has undertaken several programmes to benefit the marginalised section of the society to drive inclusive growth. TCE's fundamental principle in enriching the communities it serves is sharing its core skills and capabilities to benefit society
- > The Company's CSR programmes are driven as direct interventions, collaborative participation in programmes with clients or Tata group and engagement with NGOs. TCE employees contribute their expertise wherever required.

**In FY 2017-18, the Company:  
Spent a total of ₹1.06 crores on its CSR initiatives**

**Conducted an external evaluation of the  
flagship programmes**

### INFRASTRUCTURE SUPPORT

The Company continued to provide engineering design and project management support to the Tata Relief Committee that is currently running the Relief & Rehabilitation programme in Uttarakhand. Projects in progress are rebuilding Aanganwadis, School in Daira, Government Polytechnic, Women's weaving centre, etc.

**Programme will benefit about 10,000 victims afflicted by the  
floods in Uttarakhand**

### EDUCATION

#### SCHOOL ON WHEELS

School on Wheels is a unique initiative Education education for children of migrant workers. The objective is to provide bridge schooling to children with no access to education and mainstream them into regular schools. The interventions are managed from a bus converted into a classroom, which travels to the settlements of migratory workers.

**Project has covered 303 children till date.**

### CAREER AWARE

Personality profiling and counselling on aptitude and career planning provided to students attending night schools.

### SUSTAINABLE LIVELIHOOD

#### Programme in Khoripada

Through this programme, TCE has adopted a tribal village near Mumbai to provide the villagers with means to earn a decent living

and improve living conditions.

Some of the key initiatives under the same are:

- > Water resource development programme – Creation of water harvesting structures such as farm ponds, group well and drip irrigation, solar powered irrigation systems
- > Income generation support to landless families and women headed households
- > Floriculture and tree-based farming programme
- > Capacity building of farmers in modern agricultural techniques and women in self-help groups (SHGs)
- > Establishment of SHGs for better governance of the interventions by the villagers

**The interventions have helped the village to become water positive. With the fructification of the floriculture/horticulture in the coming years, the village is expected to rise above the poverty line with steady income from the land. 63 families from backward community have been positively impacted.**

**The overall CSR programmes across TCE resulted in:**

- > CSR man-hours put in by senior management: **1,777 hours**
- > CSR man-hours put in cumulatively: **9,371.25 hours**
- > Total man-hours across Tata Volunteering Week FY 2017-18: **3,496 hours**
- > Total number of beneficiaries: **3,442**



## Customer-centric

TCE has a structured process for customer engagement through Customer Feedback Forms (CFF) and Customer Connect Portal to address grievances. Customer Satisfaction Survey is conducted and net promoter score is analysed. In FY 2017-18, the Company also conducted a third-party analysis to assess and benchmark its competitive positioning.

Over the years, the Company has consistently evolved to meet customer needs. TCE has included in its service offerings digital engineering solutions, Industry 4.0 readiness with engineering for Industrial Internet of Things (IIoT). In response to customer

needs, TCE provides specialised solutions such as modularised engineering that reduces customers' go-to-market time. In response to large international clients' requirements, the Company has established dedicated engineering centres catering to marquee clients and serving as their extended engineering arm. This resulted in improved utilisation of talent in FY 2017-18. TCE's businesses have also introduced OPEX services such as plant engineering, asset lifecycle management and modernisation/upgrades of plant facility. This is in response to clients need for capital optimisation and asset sweating.

# Corporate information

## OFFICES AND ADDRESSES

### Registered office

Matulya Centre "A", 1st Floor, 249,  
Senapati Bapat Marg, Lower Parel (West),  
Mumbai-400013, India.

### Corporate Office

Unit No. NB 1502 & SB 1501, 15th Floor,  
Empire Tower Cloud City Campus, Opp.  
Reliable Tech Park, Thane- Belapur Road,  
Airoli Navi Mumbai 400 708

## BRANCH – DOMESTIC

### Bengaluru

Sheriff Centre, 73/1, St. Marks Road,  
Bengaluru – 560001

Janardhan Towers, 133/2 Residency Road,  
Bengaluru – 560025

### Pune

Sai Trinity, Central Wing, S. no. 146/1/28,  
Pashan,  
Pune – 411021

### Delhi (NCR Region)

Green Boulevard, Ground Floor,  
Tower B & C, Plot no-89A, Sector 62,  
Noida – 201301

### Jamshedpur

Pipeline Road, Sakchi, Jamshedpur – 831001

### Gujarat

1st Floor, Project Office No. 106-109 B  
Atria Complex, KH-0 Sargasan Cross Road,  
Gandhinagar – 382421

### Chennai

6th Floor, SKCL Central Square, C-35, Cipet  
Road, Guindy Industrial Estate, Guindy,  
Chennai – 600032

### Kolkata

TATA Consulting Engineers Limited  
JC 30/A; Sector III  
Salt Lake  
Kolkata 7000106

## SUBSIDIARIES

### Mumbai

#### ECOFIRST SERVICES LIMITED

Unit No. NB 1502 & SB 1501, 15th Floor,  
Empire Tower Cloud City Campus, Opp.  
Reliable Tech Park, Thane- Belapur Road,  
Airoli Navi Mumbai 400 708

## OVERSEAS OFFICES

### US-New Jersey Branch office

Suite 301, 100 Enterprise Drive, Rockaway,  
New Jersey-07866, USA

### Abu Dhabi Branch Office

P.O. Box 62990, Abu Dhabi, United Arab  
Emirates

### Nepal Branch – Liasion Office

Ward 10 Gangapdevi Marg, Budhnagar,  
Kadmandu, Nepal

### Kenya Branch – Liasion Office

D-8 Krishna Centre  
Woodvale Grove Road  
P O Box 13746 00800  
Westlands Nairobi Kenya

### The Netherlands Branch Office

C/o Vistra Amsterdam  
Atrium Building, 8th Floor  
Strawinskylaan 3127  
1077 ZX, Amsterdam

### TCE South Africa Subsidiary TCE South Africa (Pty) Limited

IQ Business Park Number 3,  
3RD Avenue, Rivonia,  
Gauteng 2128

## BANKERS

HDFC Bank, ICICI Bank Limited, Bank of  
Baroda, State Bank of India, Yes Bank, Citi  
Bank, EXIM Bank

## AUDITORS

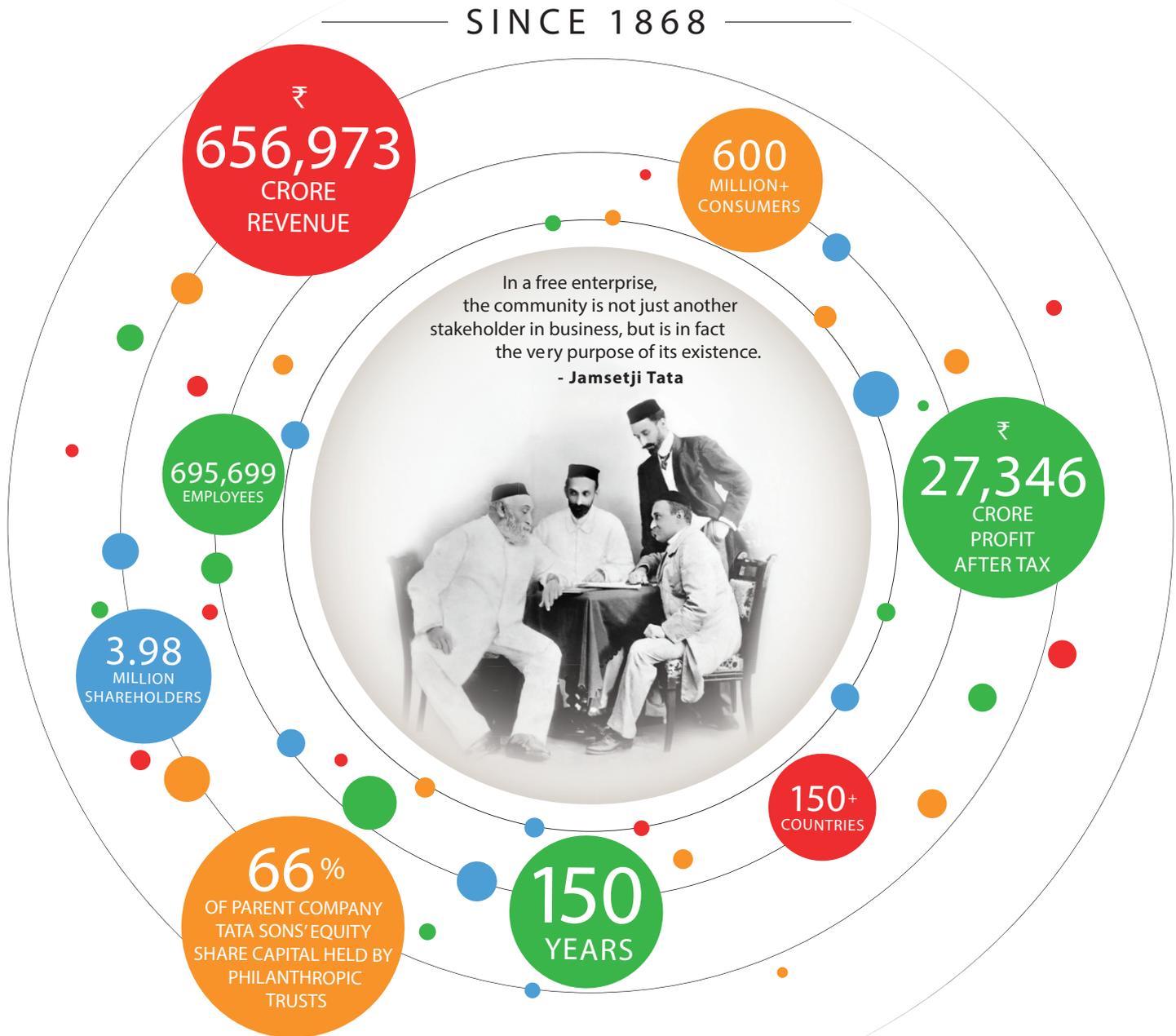
B S R & Co. LLP, Chartered Accountants  
(Statutory Auditors)  
Ernst & Young LLP (Internal Auditors)  
Robert Pavrey & Associates ,Company  
Secretaries (Secretarial Auditors)

## DIRECTORS

Mr. S Padmanabhan  
Ms. Hema Ravichandar  
Mr. Prashant Kumar Ghose  
Mr. Amit Sharma

# LEADERSHIP WITH TRUST

SINCE 1868



The figures are aggregated for Tata companies for the financial year ended 31.03.2017.

From pioneering businesses, to pioneering welfare practices,  
to pioneering national institutions,  
the Tata Group remains committed to improving the lives of communities  
we serve globally, based on leadership with trust.

Picture (left to right): The four partners - Jamsetji Tata, Founder of the Tata Group; R. D. Tata, father of J. R. D. Tata; Sir Ratan Tata, younger son of the Founder; and Sir Dorabji Tata, elder son of the Founder.



**TATA CONSULTING ENGINEERS LIMITED**

Engineering a better tomorrow

**Corporate Office:** Unit No NB 1502 & SB -1501, 15<sup>th</sup> floor, Empire Tower,  
Cloud City Campus, Opposite Reliable Tech Park,  
Thane Belapur Road Airoli, Navi Mumbai – 400708  
**email:** mail@tce.co.in | **website:** www.tce.co.in  
**CIN No.:** U74210MH1999PLC123010

**Registered Office:** Matulya Centre 'A', 1st Floor, 249 Senapati Bapat Marg  
Lower Parel (West), Mumbai - 400 013, India

TCE Corporate Communications