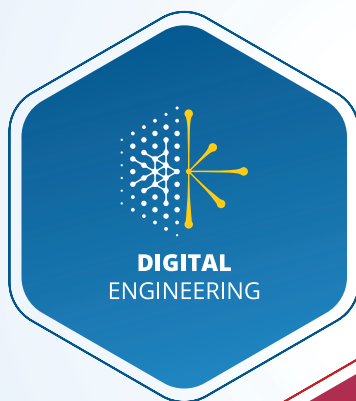




# ENGINEERING THE CHANGE



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## ANNUAL REPORT 2017 - 18

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### Forward-looking Statement


This report contains forward-looking statements, which may be identified by their use of words like 'plans', 'expects', 'will', 'anticipates', 'believes', 'intends', 'projects', 'estimates' or other words of similar meaning. All statements that address expectations of projections about the future, including but not limited to statements about the Company's strategy for growth, product development, market position, expenditures and financial results, are forward-looking statements. Forward-looking statements are based on certain assumptions and expectations of future events. The Company cannot guarantee that these assumptions and expectations are accurate or will be realised. The Company's actual results, performance or achievements could thus differ materially from those projected in any such forward-looking statements. The Company assumes no responsibility to publicly amend, modify or revise any forward-looking statements, on the basis of any subsequent developments, information or events. The Company has sourced the industry information from the publicly available sources and has not verified those information independently.



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# The era of technology-driven product ecosystem is upon us. Combining the digital, physical and virtual realms, digital engineering and new age technologies are redefining business models.

To help customers successfully navigate change, manage complexity and improve outcomes, we have taken a strategic decision to invest across four futuristic technological domains: *Digital Engineering, Smart Manufacturing & Operations, Pervasive Technologies, and Perceptual Engineering.*

The pillars of modern-day Industrial Digital Revolution, these transformative areas will help us lead the way in pushing the frontiers of innovation and efficiency.

Powered by our technological prowess to create tomorrow's solutions, L&T Technology Services is successfully 'Engineering the Change'.

## Corporate Snapshot



**LTTTS is committed to engineering the change with disruptive new-age technology solutions.**



### WHO WE ARE

L&T Technology Services Limited (LTTTS) is a leading global Engineering Research & Development (ER&D) company offering consultancy, design, development and testing services across the product and process development life cycle.

### WHAT DEFINES US

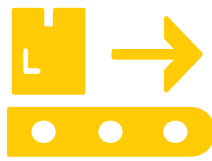
We are proud of our rich engineering legacy. Our parent company Larsen & Toubro Limited, is an Indian multinational engaged in technology, engineering, construction, manufacturing and financial services with USD 18 billion in revenue. It operates in over 30 countries worldwide.

## WHAT WE DO

We offer a portfolio of engineering services across industries. We closely follow the technology trends in the ER&D industry and have focused on key technology areas that impact the various verticals in which we operate. These include (but are not limited to) digital engineering, mobility and augmented reality, IoT (including IIoT and NBloT), automation of knowledge, robotics, autonomous & near-autonomous vehicles, energy efficiency and imaging and video. We are the only Indian pure play engineering R&D Company of its kind to offer ER&D services and solutions to all major industries viz. Transportation, Industrial Products, Telecom & Hi-Tech, Medical Devices and Process Industry.



Transportation



Industrial Products



Telecom & Hi-Tech



Medical Devices



Process Industry

**LTTS offers design and development solutions throughout the product development value chain and provides solutions in the areas of mechanical and manufacturing engineering, embedded systems, software engineering and process engineering.**

**LTTS provides services and solutions in the areas of New Product Development, Product Lifecycle Management, Engineering Analytics, Power Electronics, M2M Connectivity and IoT.**

## WHO ENDORSES OUR EXPERTISE

We have a global customer base which includes 52 Fortune 500 companies and 51 of the world's top ER&D spenders. Further, 90% of our annual revenue is from repeat business, signifying the high confidence we enjoy among our customers for our offerings.

Our offerings are delivered to our customers using flexible business models like build, operate, transfer, end to end managed R&D services, fixed price, time & material and outcome-based pricing including risk-reward, transaction-based pricing, and revenue share.

## HOW WE SUCCEED

Our ER&D services help customers reduce time-to-market for their end products and services, innovate to create new products and solutions, reduce the cost of development and meet increasing regulatory requirements more effectively.

## WHERE WE OPERATE

North America constitutes our largest market with 57.6% of revenue share followed by Europe and India with 18.6% and 11.7% share respectively. Rest of the world contributes 12.1% of our global revenues.

## WHAT PROPELS US FORWARD



### Our Vision

- To be technology explorers, engineering better products, services, and life.
- To be amongst the top 10 global engineering services companies in the world.



### Our Mission

- We aim to be the best, lead the curve, nurture brilliance, obsess about customer delight and become the only partner of choice for our stakeholders.



### Our Values

- Ethical and professional organisation with respect for individual and diversified global talent.
- Social harmony and peaceful existence.

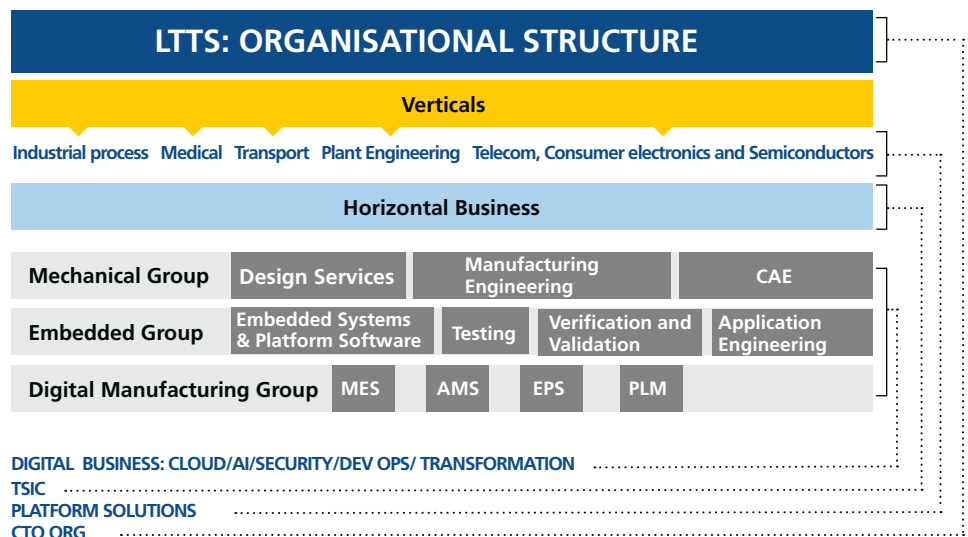
## OUR OFFERINGS & VALUE PROPOSITION

LTTS' multi-sectoral presence and domain expertise enables cross-pollination of ideas and best practices leading to differentiated engineering solutions for the world's top R&D Houses. The Company has a robust horizontal technology practice comprising of Embedded Systems, Mechanical Engineering and Digital Manufacturing Group, which together provide design and development solutions across the entire value chain of product development. These technology lines also facilitate LTTS' go-to-market strategy.

### Embedded Systems & Applications:

We help customers to engineer and launch ingenious innovations to the market with our exhaustive portfolio of solutions in embedded design, application software and field testing. Our strength as an ideal design partner in the embedded systems space is vindicated by us receiving the Zinnov Zones 2017 Product Engineering Services ratings.

**Mechanical Engineering:** Technology-dependent OEMs, ODMs, and Tier 1 and Tier 2 suppliers rely on our mechanical engineering services for driving business success. We bring efficiency and innovation to our customer's product design and



development strategies with customised solutions that span the product lifecycle. Our advanced, end-to-end services combine aesthetics and functionality for ensuring faster time to market at optimal costs.

**Digital Manufacturing Group:** Our integrated smart manufacturing services facilitate real time visibility of plant operations along with timely insights. This leads to leaner and faster processes, quicker and informed decision-making, better quality products and improved plant safety. Key offerings include Digital PLM, Integrated Manufacturing

Services, Engineering Application Software and Asset Data Management Services.

In addition to the above, we have defined our Quality Management Systems (QMS) in line with our Quality policy and organization's vision. Our scope of implementation of the QMS includes all our engineering services activities such as embedded, hardware, software and product design.

The QMS manual is detailed and adopts the ISO standards and CMMi guidelines. The system provides readily available procedures and templates

required to execute all types of projects. The project workflow for various project development life cycles (PDLs) are also built into a tool for ready use. An independent quality team reporting to the COO governs the maintenance, updating and compliance to the QMS. QMS also provides the senior management with a balanced dashboard, which is a scorecard of all

the lead and lag metrics. Structured governance in the use of dashboards enables early risk identification and addressal, hence ensuring the highest quality for project deliverables.

To boost innovation and incubate new technologies & platforms, LTTS has set up a **CTO Organisation**. As we foray deeper into the digital world, the CTO Organization would be incubating

and building the Digital Business by focusing in the areas of Cloud Practice, AI/Analytics, Security, IoT and Digital Transformation. The CTO Organization is also responsible for increasing the penetration of digital business among existing and prospective customers and driving LTTS' go-to-market strategy to grow in the digital space.



#### Awards & Recognition

- Recognised by CII as one of the most innovative Indian companies
- Golden Peacock Innovation Award 2018 for smart campus solution i-BEMS™
- Recognised by NASSCOM as a prominent player for capabilities to reskill, upskill and cross-skill across Digital Technologies
- Rated as a leader across 10 major industries in the Zinnov Zones 2017 Product
- HfS Positioned L&T Technology Services in 'Winner's Circle' for IoT Services
- LTTS featured in HfS 'Winners Circle' for Automotive Engineering Services
- Businessworld bestowed HR Excellence Awards
- Positioned as IoT Services Leader by NelsonHall



#### Strategic Alliances

- Partnered the Government of Israel for launching a Centre of Excellence (CoE) in Jerusalem (Israel)
- Partnered with Microsoft to host flagship LTTS solutions on Azure
- Global partnership with PTC to provide next-generation of Smart Digital Solutions & Services to shared enterprise customers worldwide
- Strategic partner for CoE-IoT- a joint initiative of Government of India (Department of Electronics and Information Technology or DEITY), NASSCOM and ERNET
- Partnered the US-based Purdue University and the Indian Institute of Science, Bangalore for futuristic technologies like robotics and nanotechnology



#### Certifications

- CMMI Level 5 certified since 2003, which is the benchmark in Quality Standards
- ISO 9001:2015 by Lloyd's Register Quality Assurance for engineering solutions in the CAD and CAM domains
- AS 9100 D
- ISO 13485: 2016
- CMMi – DEV 1.3, Maturity Level
- ISO/IEC 27001:2013
- ISO 14001:2015
- BS OHSAS 18001: 2007

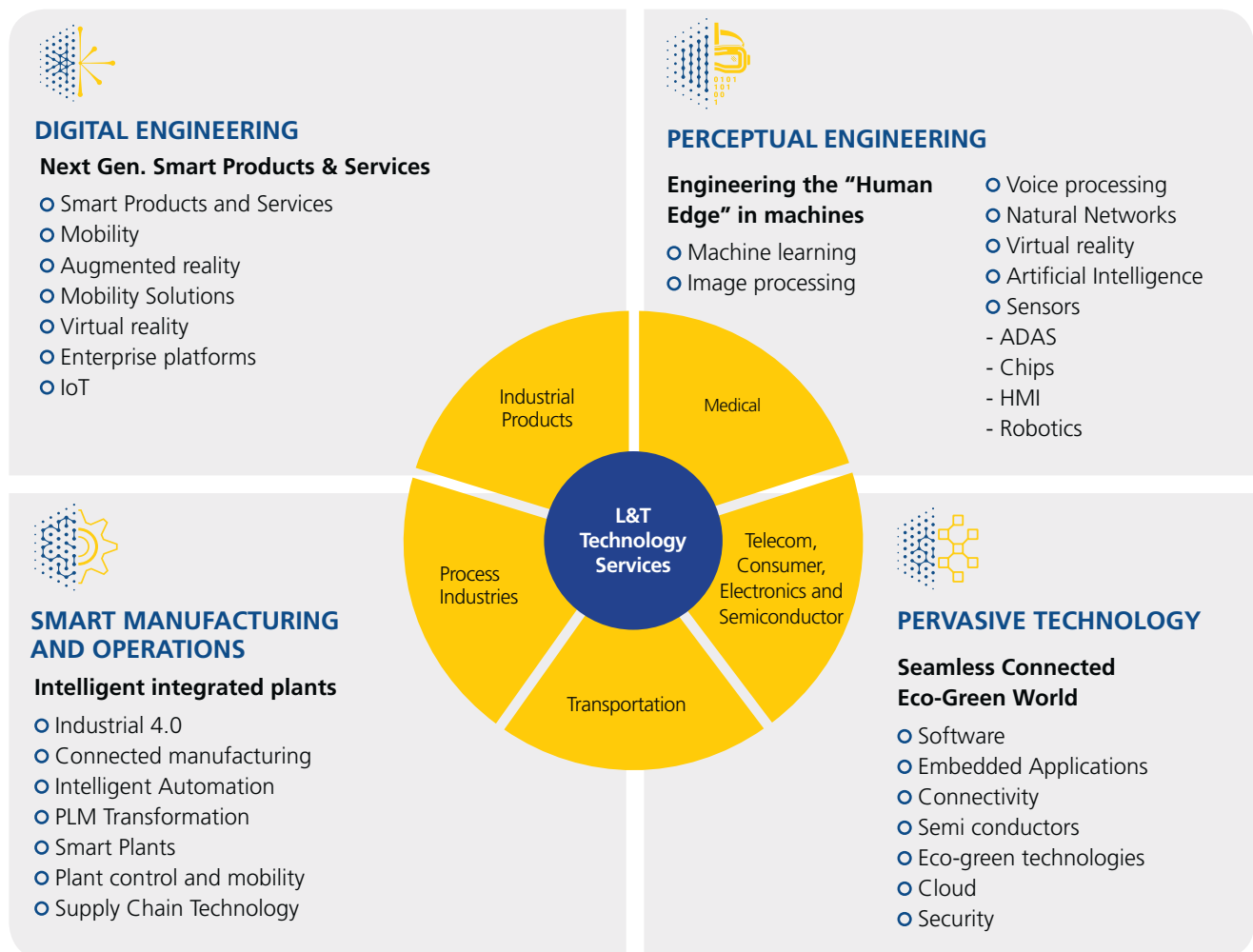
# Engineering the Change

In line with our mission and vision we have devised the Lakshya 2021 framework which is LTTs' five year strategy plan that envisions LTTs transforming its end customers products and services using new age technology and digital engineering. This mission is also reflected in our Company's brand positioning 'Engineering The Change' or ETC.

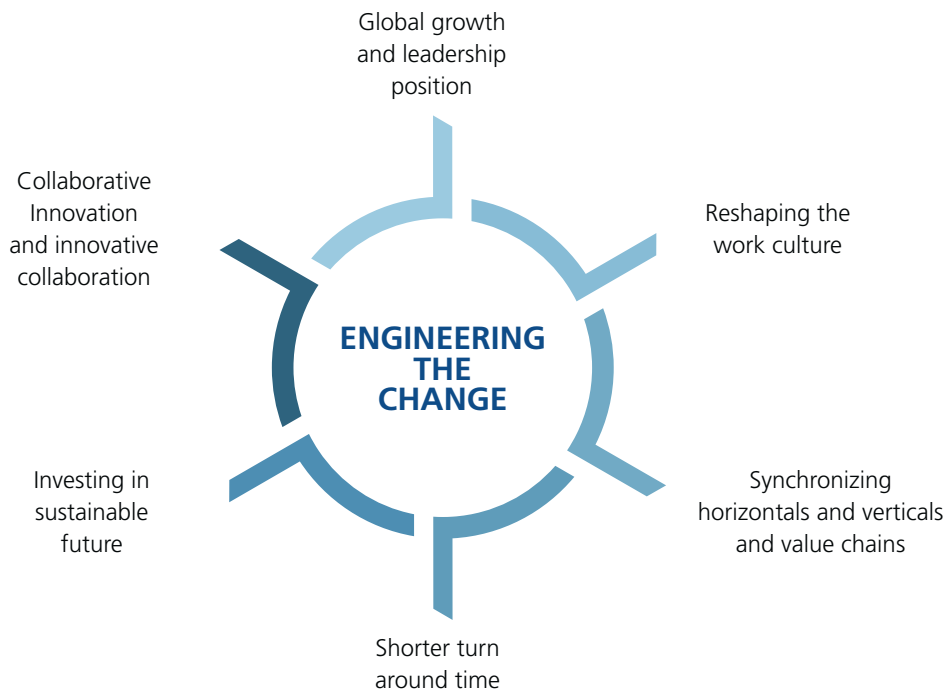
At LTTs, ETC is all about envisaging industrial and technological developments of the future and acting ahead to usher a new era of innovation, analytics and productivity for our customers. Our ability to draw insights and learnings from several verticals is our most valuable asset, enabling us to think two steps ahead and enhance our offerings continuously.

## THE FOUR-PILLARS OF TRANSFORMATION

From an engineering and R&D standpoint, there are four futuristic technologies, 4Es or 'four-pillars' which are expected to disrupt traditional ways of doing business and are crucial to shaping innovation. These technologies, namely digital engineering, smart manufacturing and operations, pervasive engineering, and perceptual technologies are enhancing the value proposition to the end-users at a rapid pace.







## ENGINEERING THE CHANGE THROUGH DISRUPTIVE SOLUTIONS

As a services company, it is necessary for us to be contemporary with technology and practices so as to be ahead of our competition and to be able to provide futuristic solutions for our customers. Due to our engineering heritage and commitment to sustainable innovation, we are at the forefront of transforming India into a global ER&D hub. As a strategic decision to capitalise on the disruptions and digitalisation wave in India today, we are investing in building solutions around new age, sustainable and go green initiatives.

- **VANGEN (Video Annotation Generator)** - Allows easy data collection and labelling to train autonomous vehicles to read data. For example, the platform can train autonomous cars to distinguish and find the correct lane through images.
- **AiKno™** - Cognitive intelligence framework which combines contextual intelligence and AI, enabling customers to develop a range of digital virtual agents, problem solving applications and robotic process automations.
- **UBIQWeise™** - LTTS' proprietary IoT platform that supports data acquisition from IoT devices, aggregation at the gateway, storage in the cloud and easy retrieval by applications.

- **WAGES** - Cloud based application for monitoring and optimizing Water, Air, Gas, Electricity & Steam for manufacturing plants. It measures data on-site, conducts analysis, site auditing, produces assessments and reports.
- **iBEMSTM** - Intelligent building energy management system based on cloud for managing and monitoring building operations to minimize energy consumption. Facilitates management of energy consumption, heating, ventilation and air conditioning, elevators and escalators, building safety and lighting.
- **nBon** - A Narrow Band IoT (NBloT) solution that provides Wide Area Network connectivity at low power. Specifically designed for indoor coverage, at low cost with long battery life and high connectivity and easy integration into target platform.
- **Service IQ** - Mobile solution that connects customers to enterprises in real-time and even in offline mode. Facilitates quick and easy resolution of issues being faced by end users.
- **DT ROBOTM** - Multiplatform framework for handheld devices, networking equipments such as telephones, routers and vehicle infotainment systems. Allows testing the devices on various performance parameters such as display, battery life, calling, connectivity and audio quality.



## CONNECTED SYSTEMS WITH DIGITAL ENGINEERING

By infusing Digital with Engineering, we are helping our customers design next-generation smart products and services. Leveraging Digital Engineering helps us create an ecosystem of products and solutions, in turn creating a system of systems for the end-customer that makes experiences more intuitive and meaningful. Our digital engineering portfolio of smart services has enabled us to emerge as a leading player in this area.

### The Change that Digital Engineering Ushers

Smart appliances such as connected coffee machines, IoT enabled wearable devices such as smart helmets which can monitor workers in hazardous scenarios, and condition based monitoring of vital parameters of plant assets are just a few of the smart solutions we have delivered through our digital engineering capabilities.

### Our Differentiation

As an ER&D company, the impact of our digital engineering services is at the product, plant and enterprise levels, helping customers design next-gen products and services.



## CREATING DIGITAL FACTORIES WITH SMART MANUFACTURING

Driven by the ever-evolving consumer landscape, increasing complexity of supply chain and proliferation of smart technologies, businesses are seeking new ways to increase productivity.

Some of the burning questions in modern day manufacturing setup are:

**How can manufacturers shrink and shorten the design to manufacturing cycle?**

**How can intelligent automation be enabled across all stages for faster time-to-market and sustainable competitive advantage?**

By reimagining manufacturing with intelligent and integrated plants and connected technologies, we are bringing Smart Manufacturing onto the shop floor of enterprises to boost efficiencies, ensure safety compliance and cut operational costs.

### Our Differentiation

We delivered a cutting-edge project at the plant of one of the world's leading OEM manufacturers, wherein we integrated a new model into existing manufacturing lines using virtual simulation of robotic welding, PLC programming and HMI design.