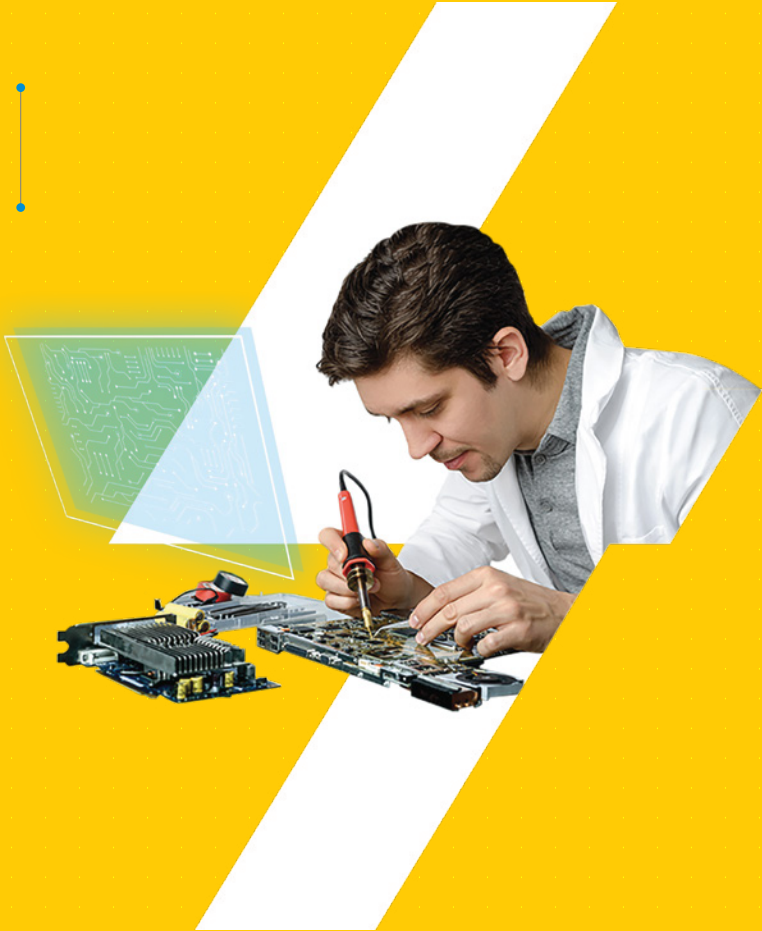




*L&T Technology Services*



# ENGINEERING THE CHANGE

[www.LTTS.com](http://www.LTTS.com)

## LTTS IN A SNAPSHOT

L&T Technology Services is a leading global pure play ER&D services company



**270+**  
Global Clients



**16,641**  
Employees



**525**  
Patents



**53**  
Of Global 100 R&D  
Spenders as clients



**51** R&D  
Innovation Labs



**17** Global  
Design  
Centers



**TOP 25**  
Best Employers  
Globally



**25+**  
Countries



\*Data as of June 30, 2020

## WHAT WE DO

LTTS lives and breathes engineering



## OUR UNIQUE DIFFERENTIATORS



### INFRASTRUCTURE

50+ R&D Labs for product design, engineering, tear-down, compliance, power electronics & digital



### CROSS-POLLINATION

Our multi-vertical expertise enables us to take best practices from adjacent industries and adapt them to your business



### SOLUTIONS & ACCELERATORS

Ready-to-use solutions & accelerators for product design, analytics, cybersecurity, AI, test automation, and smart workplaces



### DIGITAL ENGINEERING

Cloud  
DevOps  
Analytics  
Cybersecurity

Microservices  
AR/VR  
Industry 4.0



## ACROSS MULTIPLE INDUSTRIES

7 of top 10



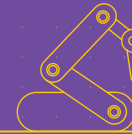
Plant Engineering

8 of top 10



Hi-Tech

7 of top 10



Industrial Products

8 of top 10



Transportation

4 of top 5



Media & Entertainment

3 of top 5



Medical & Lifesciences



## OUR PROVEN PLATFORMS & SOLUTIONS

**INTEGRATED SMART  
BUILDING EXPERIENCE  
PLATFORM**



**DEVICE TO  
CLOUD  
CONNECTIVITY**



**INDUSTRIAL  
ENGINEERING  
AI TOOL**



**MULTI PLATFORM,  
MULTI DEVICE  
REMOTE TEST  
AUTOMATION**



**PREDICTIVE ANALYTICS  
& CONDITION  
MONITORING OF  
ROTATORY EQUIPMENT**



LTTs has developed a broad portfolio of proprietary technologies & platforms, including UBIQWEISE, VISIT, WAGES, InspectAR, etc., to help clients accelerate implementations and realize the benefits of Industry 4.0.



**IoT Platforms  
Leadership Award  
Integrated MCare**



## COMBINED WITH OUR ABILITY TO COLLABORATE

**What  
LTTs  
did?**

Embedded System  
| Mechanical  
Design | Software |  
Testing

Intelligent Building  
Platform |  
Connectivity |  
System Integration

Sensorization |  
Device to Cloud  
Connectivity

**What we  
achieved  
together**



Ruggedized Tablet



Smartest Campus  
in the World



Remote Asset  
Monitoring

**What  
partners  
did?**

Certification | Proto  
Manufacturing |  
Procurement | PCB  
Fabrication

Sensors | Cloud  
Platforms | Machine  
Learning | Building  
Facility

Monitoring  
Software &  
Dashboard Data  
Analytics



## AND BUILD PARTNERSHIPS

Continuously keeping ourselves abreast on technology, standards & industry trends to provide **cutting edge solutions to our customers**

Creating End to End Business solutions by leveraging the **ecosystem of partners**

### R&D PARTNERSHIP

### CERTIFICATION & STANDARDS



### PRODUCTS PARTNERSHIP

### TECHNOLOGY & SOLUTIONS

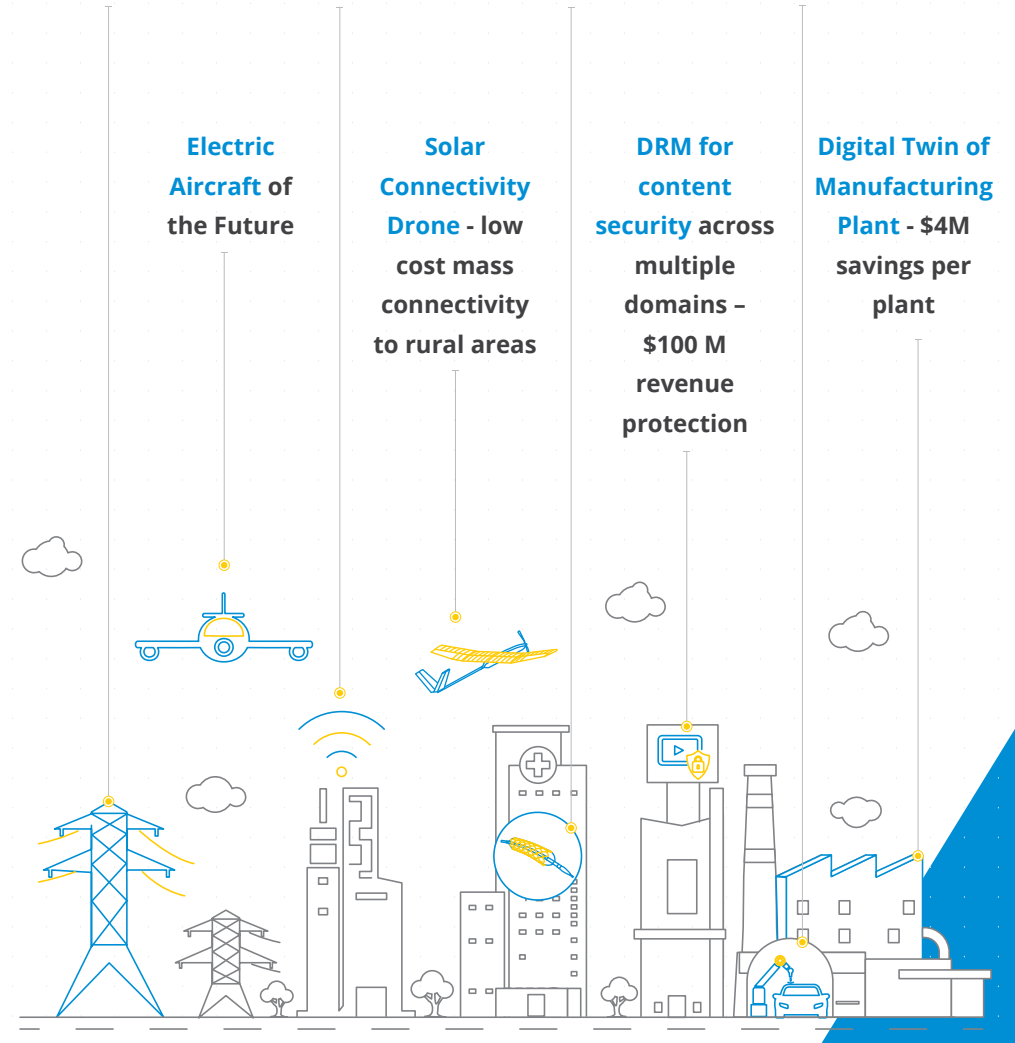
## HELPS US ENGINEER PARADIGM SHIFTS

World's 1<sup>st</sup>  
Commercial  
Mesh Network  
for Grids

Architecting  
the **Smartest**  
Campus in  
the world

World's 1<sup>st</sup> 40  
atm rated  
Angioplasty  
Device

World's 1<sup>st</sup>  
**Autonomous**  
Welding  
Robot







## WE CATER TO THE ENGINEERING NEEDS OF THE ENTIRE SPECTRUM



### DISRUPTIVE

- ◆ Vendor Developed IP
- ◆ Minimalistic Development Cycle
- ◆ Guarded Development



### ADAPTIVE TECHNOLOGY

- ◆ Reduce time for development



### CONVENTIONAL TECHNOLOGY

- ◆ Complete Program Ownership
- ◆ Sustain & Maintain

## AND BRING THE BEST OF A START-UP & LARGE ORGANIZATION

### LONGEVITY

Decade Long Engineering Engagements

- ◆ 10 Year Engagements with 32 of the Global Top 100 ER&D Spenders
- ◆ Engineered 100 Patents & delivered >\$100M cost savings
- ◆ 42% of our revenue comes from 10+ year engagements
- ◆ 60% of our Top 25 largest customers have been with us for 10+ years
- ◆ Long term engagements across all industries

### SPEED & INNOVATION

525 Patents & Counting

Gyroscrewdriver



Dual-Screen  
Smartphone



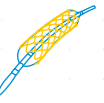
Autonomous  
Welding Robot



Commercial  
Mesh Network



Angioplasty  
Device



Solar  
Connectivity Drone



World's 1<sup>st</sup>

### MATURE PROCESSES



# R&D LABS AS A SERVICE



EMI/EMC LAB



RADIO FREQUENCY LAB



OPTICS LAB



THINK STUDIO



POWER ELECTRONICS  
DESIGN CENTER



POWER EQUIPMENT  
TEST FACILITY



ACOUSTICS LAB



ENVIRONMENTAL TESTING



DRY LAB



MATERIAL TESTING CENTER



TEAR DOWN LAB



HARDWARE & TEST  
EQUIPMENT ENGINEERING



WET LAB



MICROSCOPY LAB



5G TELCO CLOUD  
ENGINEERING



WELDING STUDIO



IoT INNOVATION HUB



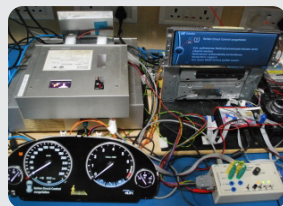
AR/VR INNOVATION HUB



5G TESTING AS A SERVICE



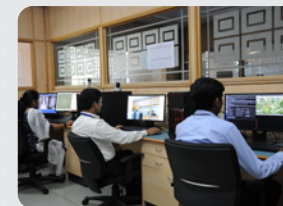
ELECTRICAL VEHICLES



TRANSPORT INSTRUMENT  
CLUSTER



DIGITAL PLM  
DESIGN CENTER



MACHINE VISION  
& IMAGING



INTEGRATED VIDEO  
PROCESSING LAB





## HOW THE INDUSTRY RECOGNIZES US



Golden Peacock National Award for  
Quality, Innovative Product and Service



World Quality Congress Award  
for Quality Excellence



Recognized as one of the  
"Most Admired Brands"



Best Company for Excellence  
& Innovation



HR Execution  
Excellence Award



Company of the Year



Digital Skills Award, Artificial  
Intelligence Game Changer Award



Best CSR Practice  
Award



Confederation of Indian Industry

Most Innovative  
Indian Company

## AND HOW WE GIVE BACK



EDUCATION & SKILL DEVELOPMENT



WATER CONSERVATION



HEALTHCARE FOR THE NEEDY



ENVIRONMENTAL RESTORATION

Food & Health



Awareness



10k Charity Run





## WHAT ANALYTS SAY

Rated as **expansive & established leaders** by all engineering rating studies



Industry 4.0  
Connected Worker  
Connected Logistics  
Connected Assets  
Connected Products  
IoT- Public Infra  
IoT- Energy & Utilities  
Content Security  
OTT Video  
IoT Telecom



Manufacturing IoT  
Plant Cybersecurity  
Augmented Reality  
Visual Analytics  
Plant Engineering  
Industry 4.0



Digital Manufacturing Services



Chemical and O&G Engineering  
Lifesciences & CPG Engineering  
Automotive Product Engineering  
Automotive Mfg Engineering  
Aerospace – Product & Mfg Engineering  
Digital Oil Field



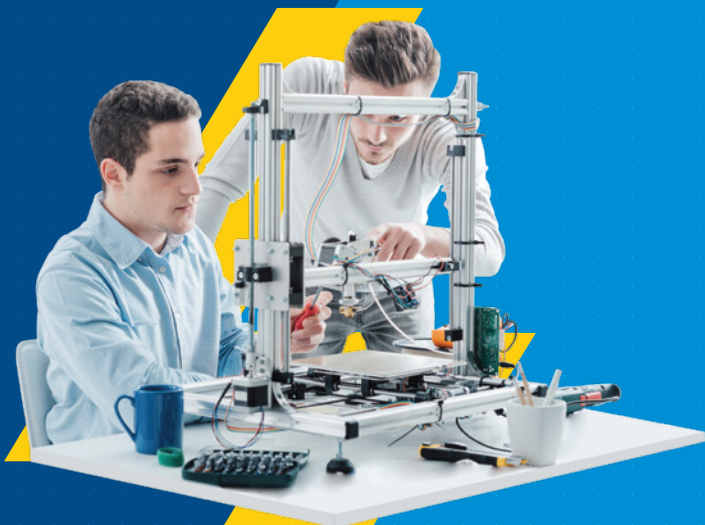
Business & Industrial IoT Engineering



Automotive Engineering  
Embedded Engineering



Consumer IoT  
Industrial IoT  
Control Systems  
PLM O&G



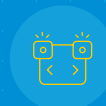
## A CLOSER LOOK AT OUR INDUSTRY OFFERINGS

## INDUSTRIAL PRODUCTS

### WHO WE SERVE

- ◆ Industrial Machinery
- ◆ Oil & Gas
- ◆ Renewable Energy
- ◆ Power Electronics
- ◆ Building Solutions
- ◆ Automation
- ◆ Test & Measurement
- ◆ Special Machine Tools
- ◆ Lighting Engineering

### AWARD WINNING PRODUCTS



#### EMERGENCY LUMINAIRE

Best of Category  
Design Excellence  
Awards in LIGHTFAIR®  
International 2018



#### VIBRATION METER

Danaher Golden  
Innovative  
Award



#### GRID TIED SOLAR INVERTER

Solar Industry  
Award



#### POWER DRIVE

Plant Engineering  
Product of the  
Year Gold Award

### SUCCESS STORIES

- ◆ World's 1<sup>st</sup> Motion Activated Screwdriver
- ◆ World's 1<sup>st</sup> Autonomous Welding Robot
- ◆ Smartest Campus in the World
- ◆ Patented Multi-voltage Booster Technology for Welding Power Source
- ◆ Patented Portable Vibration Analyser
- ◆ High Power DC-DC Converter
- ◆ Grid Tied Solar Inverter
- ◆ Machine Vision System with Patented Technology for Leak Detection



## GROUND TRANSPORT

### AUTOMOTIVE

- ◆ Infotainment & Driver Information Systems
- ◆ Connected Cars
- ◆ Body Electronics & Comfort Systems
- ◆ ADAS & Autonomous Drive
- ◆ Powertrain and Alternate Propulsion Systems
- ◆ Body Engineering & Safety Restraints

### TRUCK & OFF HIGHWAY

Product Engineering, Manufacturing Engineering & Digital Engineering across all product lines



### SUCCESS STORIES

- ◆ Android Based Infotainment Cluster for Automotive OEMs
- ◆ Integrated Radar & Camera Development for Automotive Tier-1 Supplier
- ◆ Remote Tracking & Monitoring for Heavy Construction Equipment & Mixed Fleet
- ◆ Optimizing Cost of Lifting System of Lawn Tractor Through Redesign
- ◆ 3D Modeling & Simulation of Automotive Manufacturing Plant
- ◆ Competitive Benchmarking of Tower Crane for the India Market

## AEROSPACE & RAIL

### AEROSPACE - WHAT WE DO

Aero Structures



In-flight Entertainment

Aero Systems



Drone Solutions and Services

Avionics



Test Equipment

Aero Engines



Air Traffic Mgmt.

### RAIL - WHAT WE DO



Train Design & Controls



Rail Signaling



Safety & Reliability (RAMS)

### SUCCESS STORIES

- ◆ Next-gen Aircraft Propulsion System
- ◆ Advanced Seatback IFEC System
- ◆ Optimization of Horizontal Stabilizer for an Aerospace Major
- ◆ Model Based Engineering for Aircraft Heater Module
- ◆ Parabolic Aluminized Reflector (PAR) Lighting
- ◆ Development of a Safe & Reliable Railway Brake Controller
- ◆ Foolproof independent checking & standard setting for a Light Rail Transit System



## MEDICAL DEVICES & LIFESCIENCES

### WHO WE SERVE

- ◆ Surgical
- ◆ Therapeutic
- ◆ Diagnostic
- ◆ Patient Monitoring
- ◆ Wearables
- ◆ Supplies

### WHAT WE DO



Digital Engineering



Product Engineering



Manufacturing Services



Field Services

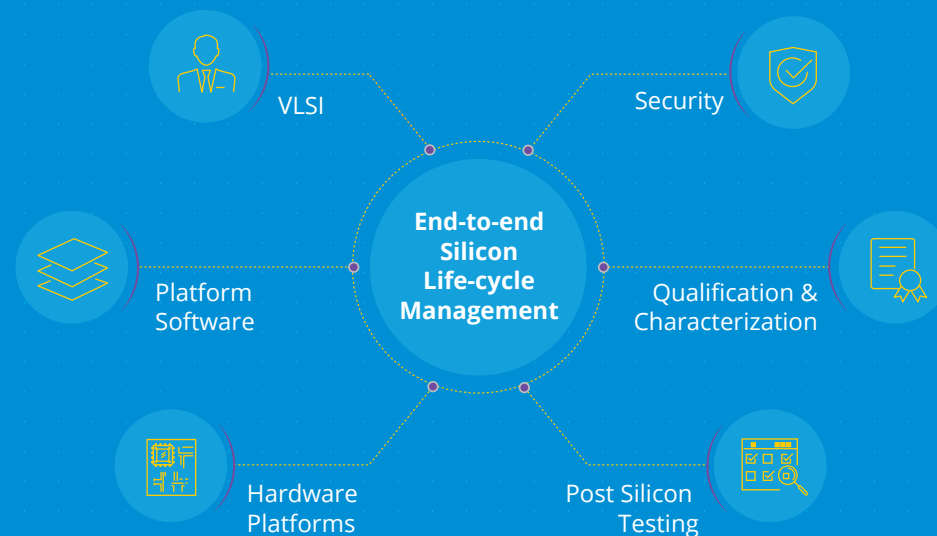


Quality Assurance & Regulatory Assurance

### SUCCESS STORIES

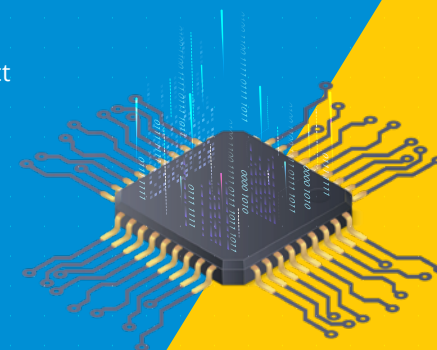
- ◆ Disposable and Single Hand Operated World's 1<sup>st</sup> Drug Patch Applicator
- ◆ World's Leading Smart Inhaler
- ◆ 3D Printing for Customized Knee Implants
- ◆ World's 1<sup>st</sup> Medical Device to Produce 40 atm Pressure
- ◆ World's 1<sup>st</sup> Airway Clearance System with Bluetooth® Connectivity
- ◆ Integrated Reusable Vessel Sealing & Cutting Device for Emerging Markets
- ◆ Automated Blood Cell Counter with Precision of >99% and Consumption of 2% Less Blood

## SEMICONDUCTORS



### SUCCESS STORIES

- ◆ World's 1<sup>st</sup> Solar Connectivity Drone
- ◆ Image Processing SoC  
5 Million Gates, 40+ Image Processing Algorithms
- ◆ Chips with 3D Imaging Capability for Home Automation
- ◆ Touchless Interactions  
Advanced Sensing Using Miniature Radar to Detect Touchless Gesture Interactions
- ◆ Ruggedized SBCs  
Industrial Grade Operation from -40C to +85C





## CONSUMER ELECTRONICS

### WHO WE SERVE



Consumer IoT & Retail



Enterprise Devices



Personal Devices

### SUCCESS STORIES

- ◆ World's 1<sup>st</sup> Dual Touch-Screen Smartphone
- ◆ The Smartest & Safest Beginner Phone in the World!
- ◆ Ruggedized, Smart Public Safety Device
- ◆ Body Camera for Public Safety Personnel
- ◆ World's 1<sup>st</sup> Wearable Support Network
- ◆ Smart Thermostats for Home Automation
- ◆ Smart Welding Using Wearable Technology
- ◆ High-end Luxury Smart Watch

## TELECOMMUNICATIONS

### WHO WE SERVE



Communication  
Service Providers



Networking & Technology  
System Providers

### WHAT WE DO



SDN/NFV



IoT Service &  
Platform  
Enablement



Telco Cloud &  
Network  
Analytics



Simulations &  
Automated  
Testing



Global Field  
Testing



NB IoT Chips



5G - Orchestration  
& Virtualization

### KEY DIFFERENTIATORS

- ◆ End-to-End Product Design & Development
- ◆ Private LTE Network in Lab
- ◆ 5G Automation Framework
- ◆ Acceleration-as-a-Service & Monetization Solutions
- ◆ Migration Tools – Legacy to Web Technologies
- ◆ Test Factory - Tools, IP & Frameworks



## MEDIA & ENTERTAINMENT

### WHO WE SERVE



### WHAT WE DO



### PROPRIETARY SOLUTIONS

- ◆ Cogmation Test Automation Framework
- ◆ RDK Emulator Tool
- ◆ Cloud EPG & Recommendation Engine
- ◆ STB Log Analytics
- ◆ FlyBoard - Next-gen Digital Signage Solution

## PLANT ENGINEERING

### WHO WE SERVE

- ◆ Energy & Utilities
- ◆ Chemicals
- ◆ Home & Personal Care
- ◆ Food, Beverages & Dairy
- ◆ Pharmaceuticals
- ◆ Discrete Manufacturing

### WHAT WE DO



### SUCCESS STORIES

- ◆ Dedicated Design Center for a Chemical Major, USA
- ◆ Global Standards Harmonization Program for a Chemical Major, EU
- ◆ Energy Audit Resulting in Considerable Savings for a Major CPG Customer
- ◆ Engineering a Greenfield Facility for a Leading Specialty Chemicals Company in the Middle East
- ◆ 3D Solutions for Digitalization of a Manufacturing Plant
- ◆ Greenfield Solutions for a Metals & Minerals Major
- ◆ EPCM Services for a Globally Leading F&B Manufacturer





**ENGINEERING THE CHANGE**

India | USA | Canada | Germany | Belgium | Denmark | Finland | France | Italy | Israel  
 Netherlands | Norway | Poland | Sweden | United Kingdom | UAE  
 Japan | South Korea | Singapore | Malaysia | South Africa | Australia