L&T Technology Services

Engineering Next-Gen Aviation

Robust | Reliable | Safe

Purposeful. Agile. Innovation.

STATE OF THE MARKET

The global aerospace industry is navigating an era of unprecedented challenges – marked by an increasingly stringent regulatory landscape, the need for enhanced operational efficiencies, and a growing demand for cutting-edge innovation.

At L&T Technology Services (LTTS), we realize the dynamics of the emerging ecosystem. As a trusted engineering and technology partner, we are empowering aerospace companies worldwide in overcoming their hurdles with confidence.

From concept to deployment, our end-to-end engineering capabilities, coupled with advanced digital transformation tools, are enabling faster time-to-market, ensuring compliance, and accelerating sustainable value creation. Leveraging flagship solutions like the A-TEX Framework for test automation, the Skywise platform for data-driven airline operations, and FactoryNext™ for smart, connected manufacturing, LTTS delivers future-ready solutions that redefine excellence across the aerospace ecosystem.

OUR FOCUS AREA

Aircraft OEM

- Advanced Aero Structures
- Cabin Systems – Interiors
- Wire Harness Design / Electrical Wiring Interconnection System
- FEM Factory / Design Analysisz

Aero Engines

- Engine Analytics (Platform) Development
- Machine Connectivity
- Metrology
- Electric Propulsion
- Supply Chain Management – FAI / FAR

Aircraft Equipment OEM

- In-Flight Entertainment and Connectivity
- Avionics
- Air Traffic Management /Unmanned Air Traffic Management
- System Integration
- Manufacturing Engineering
- Digital Engineering
- Aftermarket Support and Customer Services
- Test Engineering
- Product Qualification / Certification Services

Airlines

- Inflight Entertainment Systems and Connectivity
- Cabin Interiors
- SkyWise Platform and Apps
- Digital Applications and Analytics
- Digital Retail

Airports

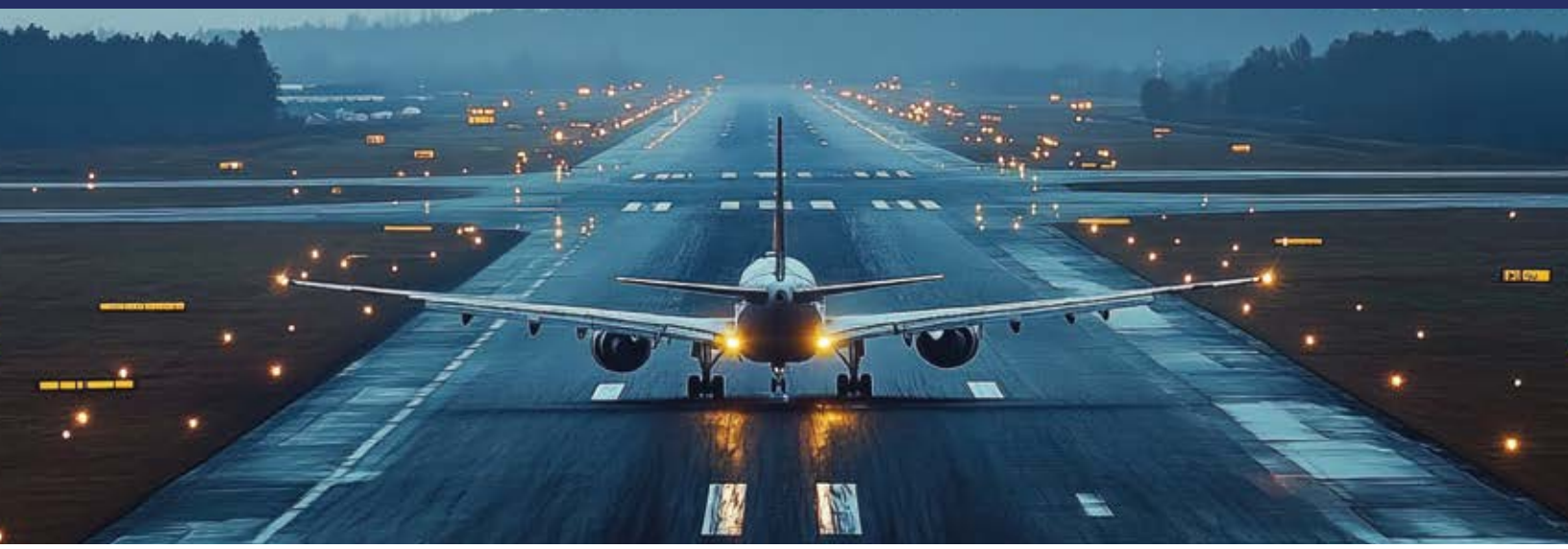
- Operations Centre
- System Integration
- Building Management Systems
- Sensorization and Predictive Analytics
- Cybersecurity

Space

- Structures / Robotics
- Avionics
- Test Equipment
- EGSE and Ground Checkout Systems
- Command & Control Centre / Telemetry

UAM

- Airframe Design
- Electrical Propulsion Systems
- Battery Management System / 3D Mock-up and Wiring Installations
- System Verification and Validation
- Systems Engineering and Integration / Connectivity / UTM



OUR ENGINEERING EDGE

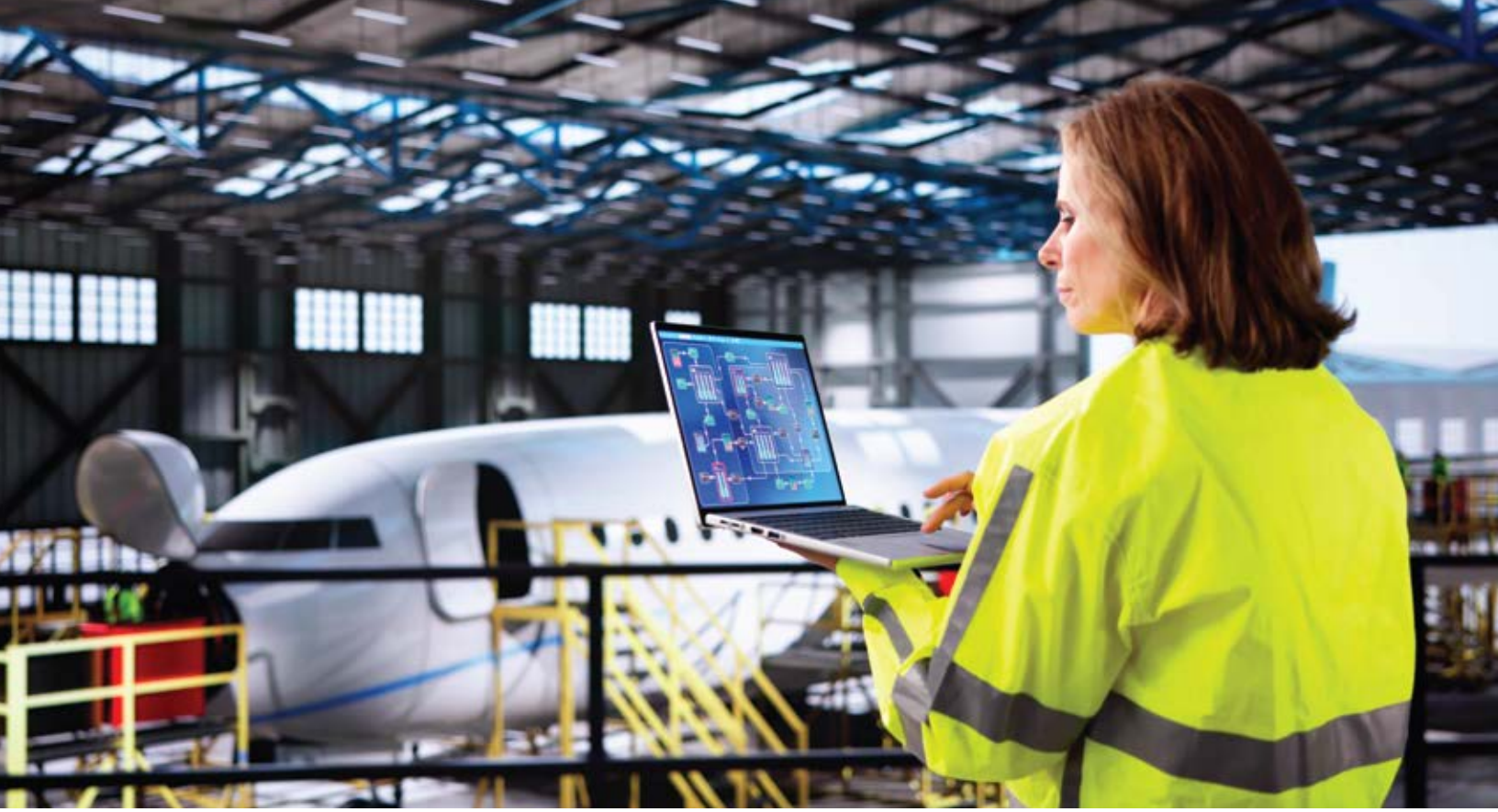
Integrated Expertise Across the Aerospace Product Lifecycle

At LTTS, we bring decades of domain-rich engineering experience to support aerospace programs from concept to deployment. Our services span the entire product development lifecycle, enabling faster time-to-market, regulatory compliance, and mission assurance for next-generation platforms. Whether it is advanced avionics, autonomous systems, or sustainable propulsion, we empower aerospace clients with future-ready engineering solutions.

1. Concept and System Architecture

We work closely with OEMs and Tier 1 players in the aerospace and space industries to define high-level system architectures and design parameters that balance innovation, performance, and safety.

- Feasibility Studies and Trade-off Analysis
- Concept Design and Simulation
- Platform Architecture Definition
- Requirements Engineering (SysML, MBSE)



2. Detailed Design and Development

From airframes to embedded systems, we deliver comprehensive design engineering services that meet the most rigorous aerospace standards.

- Mechanical and Structural Design
- Airframe, nacelle, and composite structure design
- CFD and FEA analysis for thermal, vibration, and load optimization
- Electrical Systems & Wiring Design
- EWIS, harness design, routing, and 3D modelling
- Power Electronics Hardware and Software
- Avionics and Embedded Systems
- Safety-critical software (DO-178C, DO-254)
- Flight management, navigation, and control systems
- FPGA and Multi-Core Processor Architecture
- Real-time OS, middleware, and IMA architecture

3. Digital Engineering and Product Virtualization

LTTS harnesses digital technologies with engineering expertise to simulate, predict, and optimize system behaviour before physical deployment, reducing cost and risk.

- Digital Twin and Digital Thread Integration
- Model-Based Design and Verification
- Data-driven Design Optimization
- Predictive Analytics for Flight Data and Maintenance
- AR / VR for Immersive Training and Maintenance Simulation

4. Prototyping and Manufacturing Engineering

We accelerate the transition from design to production with smart, efficient, and sustainable manufacturing solutions for aerospace clients.

- Rapid Prototyping and 3D Printing
- Product Qualification / Certification
- Tooling Design and Automation
- Factory Layout Planning and Simulation
- Production Process Design and Optimization (Lean / Six Sigma)
- PLM Integration and BOM Management
- NC Programming
- Virtual Manufacturing & Plant Simulation
- Sourcing & Value Management

5. Testing, Validation, and Certification Support

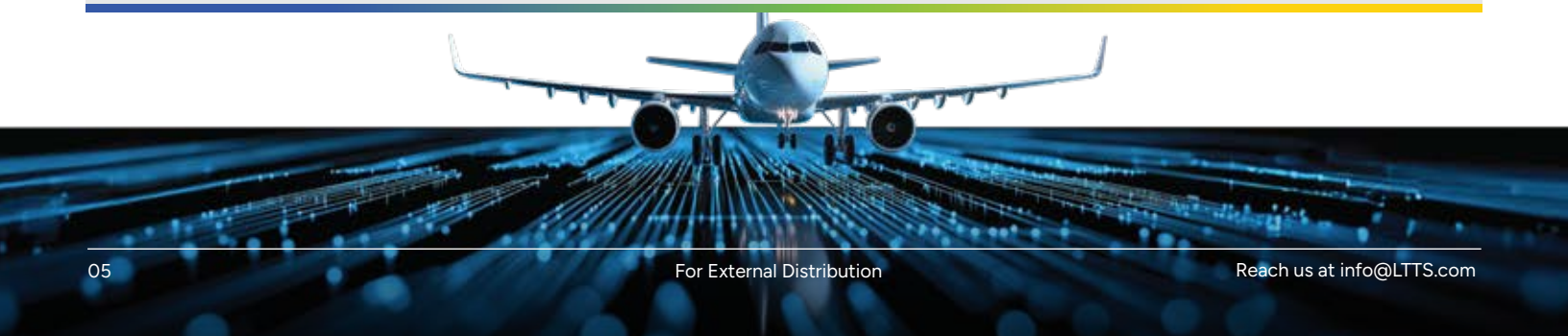
Our extensive validation frameworks and certified labs help aerospace products meet the highest safety, performance, and regulatory standards.

- Hardware-in-the-Loop (HIL) and Software-in-the-Loop (SIL)
- EMI / EMC, Thermal, Vibration and Altitude Testing
- Product Qualification (DO-160, MIL-STD-810)
- Ground and Flight Testing Support & Instrumentation
- Certification Documentation and Liaison (FAA, EASA, TCA, JCAB, CEMILAC)

6. Lifecycle Support and Sustainment Engineering

We support MRO and fleet sustainment programs with cost-effective engineering interventions and digital tools for operational continuity.

- Engineering Change Management and Redesign
- Obsolescence Management
- Reliability Engineering (FMEA, FRACAS)
- Smart MRO Solutions (IoT + AI / ML)
- Technical Publications and Digital Manuals
- (S1000D, ATA iSpec 2200)
- Product Sustenance Engineering
- Repair Engineering
- Digital Automation
- Parts Manufacturer Approval (PMA)



FLAGSHIP SOLUTIONS

1. A-TEX

The A-TEX Framework from LTTS is an advanced, scalable test automation solution developed to enhance efficiency, reliability, and flexibility in test environments. It supports design standardization across multiple programs and product lines, incorporating a distributed control system for improved resource utilization and reduced costs.

The framework enables seamless scalability, multi-programming language support, and integrates AI / ML-powered predictive maintenance modules to enable intelligent decision-making. With progressive automation levels — from manual fixtures to fully automated ATEs — A-TEX accelerates test processes through adaptive testing capabilities, real-time data analytics, and proactive maintenance strategies, ensuring optimal performance across diverse testing ecosystems.

2. Skywise – One-Stop Solution for Airlines

Skywise is a comprehensive digital platform developed to drive functional and operational efficiency across the aviation ecosystem. Designed in collaboration with Airbus, Skywise empowers airlines with advanced data analytics and real-time monitoring capabilities to optimize decision-making and streamline operations.

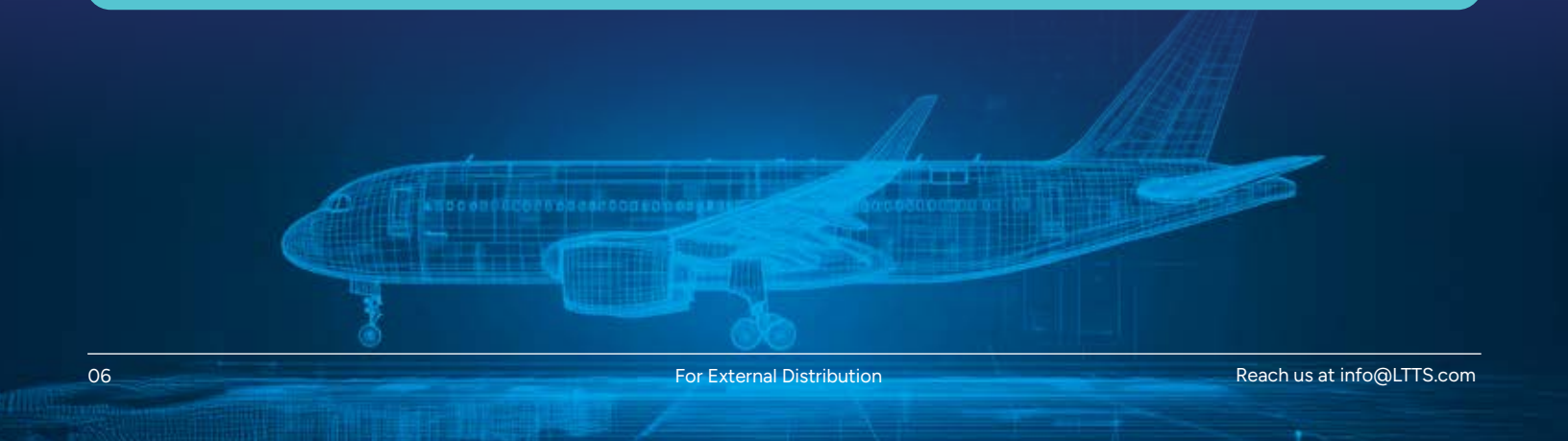
As a certified Airbus partner for the Skywise platform, LTTS delivers customized solutions that help clients unlock the full value of their data, ensuring smarter operations and sustainable growth.

The platform hosts a suite of modular applications tailored for key functions such as performance analysis, aircraft health monitoring, parts availability tracking, and integrated control center operations. These tools enable proactive maintenance, improved asset utilization, and enhanced operational reliability.

3. FactoryNext™ - Powering Factories of the Future

FactoryNext™ by LTTS is an integrated digital manufacturing solution that empowers enterprises to transform legacy plants into intelligent, connected, and sustainable factories. Built on the ISA-95 architecture, it unifies data across all layers — from sensors and control systems to enterprise applications — enabling real-time visibility, centralized control, and predictive insights.

The solution leverages cloud-edge convergence, digital twins, AI / ML, and private 5G networks to drive autonomous operations, enhance equipment effectiveness, and streamline production. With embedded cybersecurity and sustainability frameworks, FactoryNextTM delivers measurable improvements in productivity, quality, safety, and overallenvironmental impact.



LTTS: Your Strategic Engineering Partner

End-to-End Capabilities - From Design to Deployment

Scalable, Certified Talent Pool

Trusted by Global Leaders

Industry Recognitions and Strategic Partnerships

Proven Aerospace Track Record

Global Delivery Model with Co-located Teams

Global Innovation Labs & CoEs

Innovation-First and Agile Approach

Secure and Compliant Delivery

LTTS' DIFFERENTIATORS

- Global Delivery Centers in the US, Europe, and India
- Top Global Customers (OEMs & Tier 1)
- Skywise – Airbus Partner
- Signatory Certification Authority for the India Aero Program
- AS9100D, CMMI-ML5, ISO 9001:2015 Certified
- ARP4754, ARP4761, DO-160G/ED-14G, DO-178B/ED-12B, DO-178C/ED-12C, DO-254/ED-80, DO-278A/ED-109A Standards Project Execution Expertise

SUCCESS STORIES

Flight Control Computer

The Flight Control Computer (FCC) is a mission-critical avionics system enabling real-time control, safety, and aircraft stability during operations.

- Designed and developed the FCC, meeting space, power, and weight standards (Hardware & Software)
- Dual redundant interfaces – Analog Input, Analog Output, Discrete Input, Discrete Output, ARINC 429, and three redundant MIL-1553 buses
- Reduced power consumption and weight by 50%
- Achieved First-Time-Right design and development
- Complete airworthiness certification ownership

FEM Factory

A joint Centre of Excellence with Airbus, leveraging advanced simulation, automation, and digital engineering to accelerate structural analysis and simulation for aircraft safety, efficiency, and certification readiness.

- Engaged in aircraft vulnerability assessments, finite element meshing, and finite element analysis activities
- Factory model with core team and flexible resource pool
- Achieved 100% retrieval of result data with accuracy across different solutions
- Reduced manual hours by 70% for post-processing and reporting
- Achieved a 95% reduction in meshing time for standard parts (e.g., bolts, bolt joints, washers, etc.)

PEP/Overlay-Based Connectivity Solution

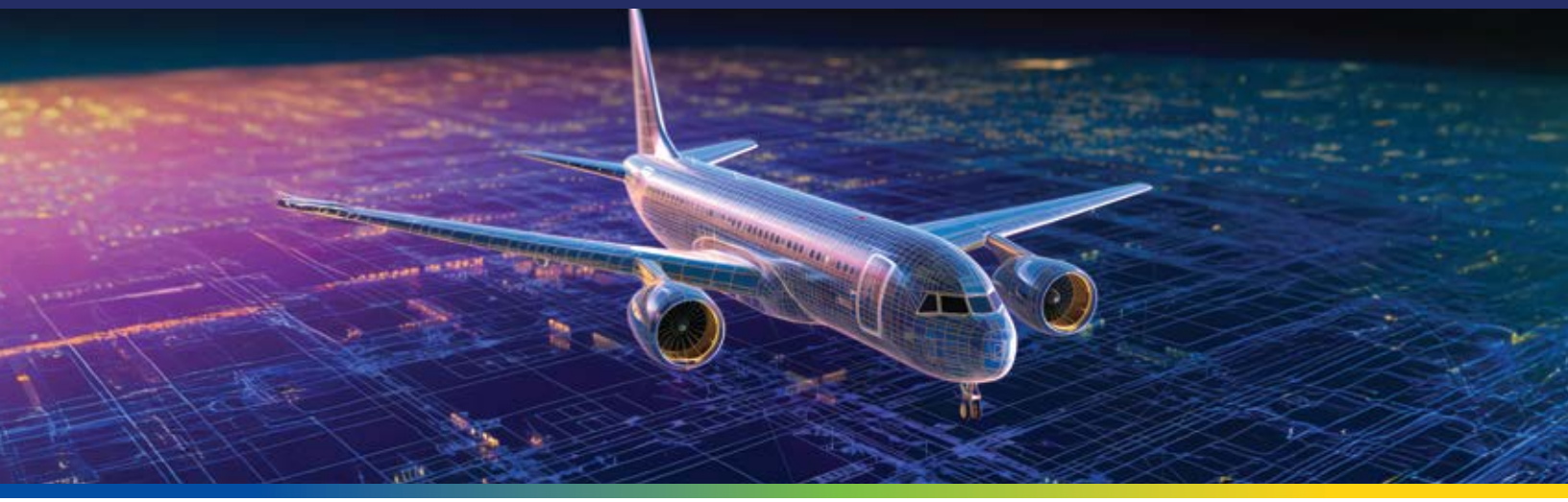
A next-gen connectivity solution that enhances network reliability for aircraft, enabling seamless digital operations, improved system performance, and real-time data access across all flight phases.

- Introduced Performance Enhancement Proxy (PEP) with an overlay network
- Abstracts physical networks and enables seamless switching across providers (e.g., Intelsat, Starlink, Kuiper)
- Functions like "SIM card switching"–lightweight, agile control at the airline's end
- Agnostic and open-source-driven platform that avoids dependence on any single provider

Next-Gen Aircraft Propulsion System

A digital simulation and testing setup that accelerates the development of next-gen electric propulsion systems, delivering faster validation cycles, reduced costs, and enhanced system reliability.

- Electric motor and drive characterization through the Model-in-the-Loop concept
- Reconfiguration of the in-house power lab as the 'Copper Bird Test Bed'
- Achieved a 30% reduction in motor design validation and optimization cycle time
- Delivered approximately 50% cost benefits to the customer



L&T Technology Services

ENGINEERING THE CHANGE