

## Transportation

Roadmap and Investments



Alind Saxena  
Chief Business Officer  
North America

LTTS Investor & Analyst Day 2018

β E I N G #1

# Disclaimer

This presentation is issued by L&T Technology Services Limited (the “Company”) for general information purposes only, without regard to specific objectives, suitability, financial situations and needs of any particular person.

This presentation may include statements which may constitute forward-looking statements. All statements that address expectations or projections about the future, including, but not limited to, statements about the strategy for growth, business development, market position, expenditures, and financial results, are forward looking statements. Forward looking statements are based on certain assumptions and expectations of future events. This presentation should not be relied upon as a recommendation or forecast by the Company. Please note that the past performance of the Company is not, and should not be considered as, indicative of future results. The Company cannot guarantee that these assumptions and expectations are accurate or will be realised. The actual results, performance or achievements, could thus differ materially from those projected in any such forward-looking statements. The Company does not undertake to revise any forward-looking statement that may be made from time to time by or on behalf of the Company. Given these risks, uncertainties and other factors, viewers of this presentation are cautioned not to place undue reliance on these forward looking statements.

This presentation may not be copied or disseminated, in whole or in part, and in any manner or for any purpose. No person is authorized to give any information or to make any representation not contained in or inconsistent with this presentation and if given or made, such information or representation must not be relied upon as having been authorized by any person. Failure to comply with this restriction may constitute a violation of applicable laws.

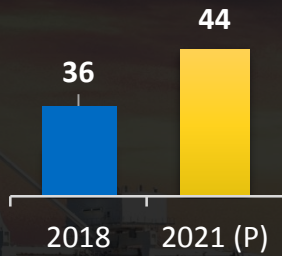
The information contained in these materials has not been independently verified. None of the Company, its Directors, Promoter or affiliates, nor any of its or their respective employees, advisers or representatives or any other person accepts any responsibility or liability whatsoever, whether arising in tort, contract or otherwise, for any errors, omissions or inaccuracies in such information or opinions or for any loss, cost or damage suffered or incurred howsoever arising, directly or indirectly, from any use of this document or its contents or otherwise in connection with this document, and makes no representation or warranty, express or implied, for the contents of this document including its accuracy, fairness, completeness or verification or for any other statement made or purported to be made by any of them, or on behalf of them, and nothing in this presentation shall be relied upon as a promise or representation in this respect, whether as to the past or the future. The information and opinions contained in this presentation are current, and if not stated otherwise, as of the date of this presentation. The Company undertakes no obligation to update or revise any information or the opinions expressed in this presentation as a result of new information, future events or otherwise. Any opinions or information expressed in this presentation are subject to change without notice.

# Agenda

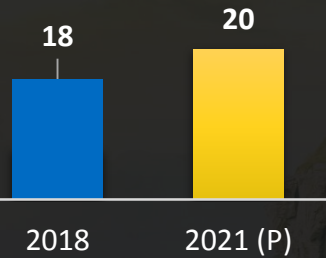
- 
- The background of the slide features a blurred image of a truck driving on a road, suggesting speed and movement. Overlaid on this are several abstract geometric shapes, including large blue and yellow triangles and circles, which add a modern, dynamic feel to the design.
- 01 Transportation-Market**
  - 02 Our Performance and Perspective**
  - 03 Case Studies**
  - 04 Our Vision and Way Forward**

# Transportation - Market

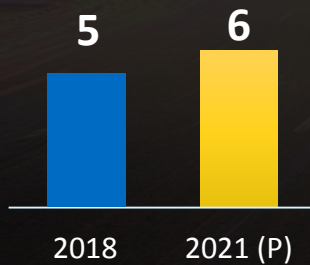
## Automotive



## Aerospace



## Truck & Off-highway



Addressable Market

## Mega Trends

Demographic

Globalization

Sustainability

Consolidation

## Drivers

Efficiency

Safety

Intelligence

Processing  
Power

Cost of HW

Energy  
Density

# LTTS Transportation Growth Journey



## Transportation



## Automotive

CAGR ~23 %

**5**

Out of Top 10 Customers

## Truck & Off-highway

CAGR ~8 %

**7**

Out of Top 10 Customers

## Aerospace

CAGR ~27 %

**6**

Out of Top 10 Customers

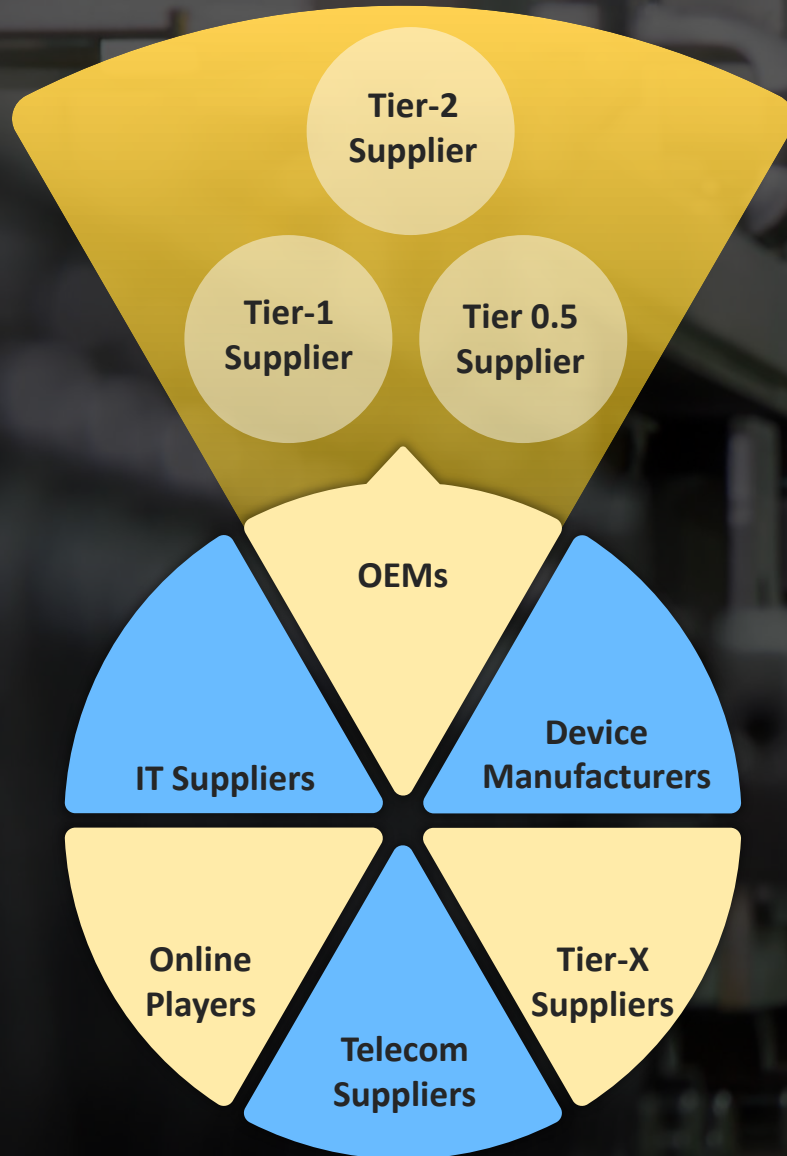
# Unmatched Multi-Geo Engineering Strategy

## Bay Area & Germany at the center of Global R&D

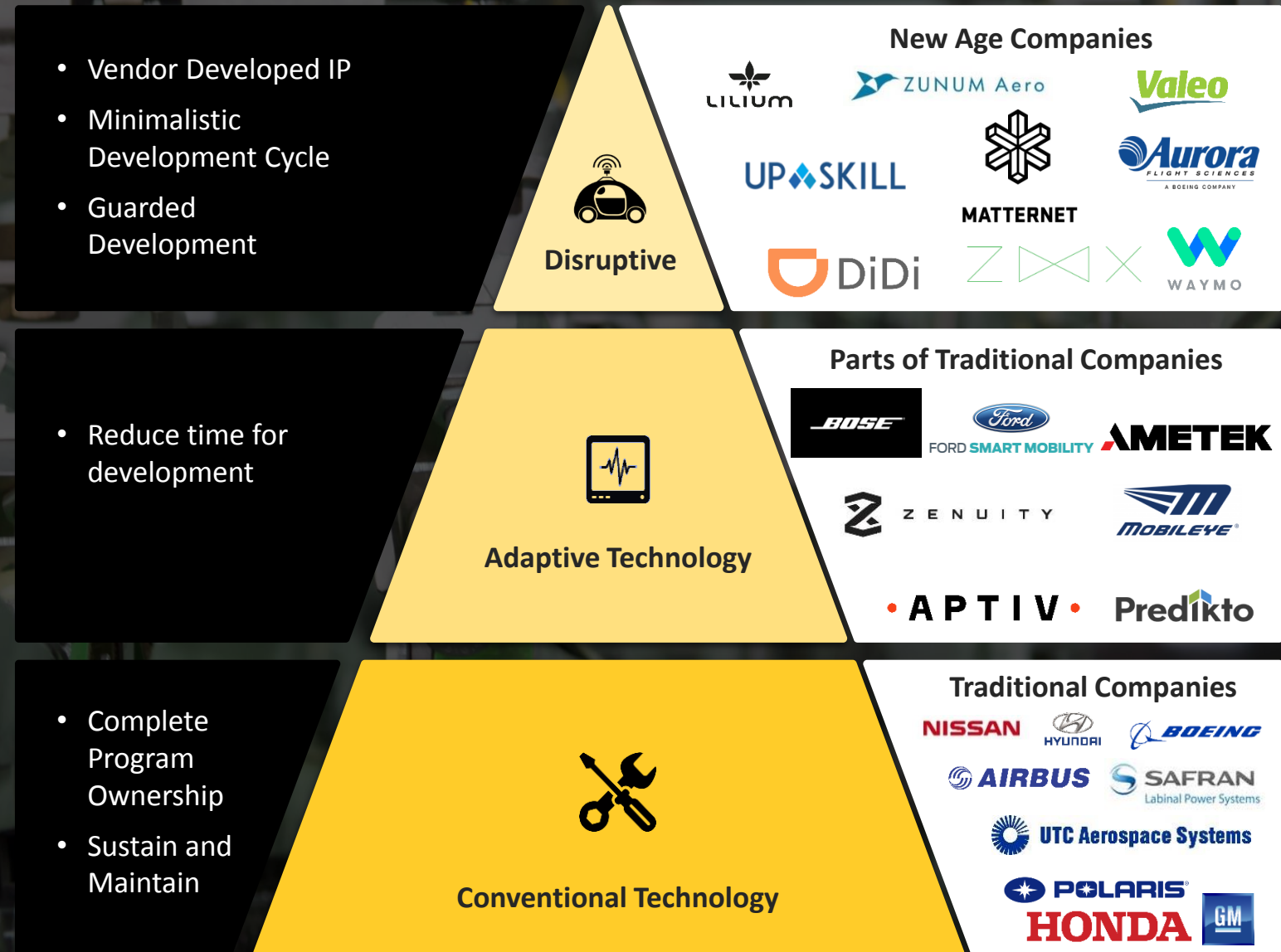


# LTTS Perspective : Market Dynamics

## Changing Ecosystem Dynamics



## Changing Customer Dynamics



# LTTS Play in the Evolving Market Dynamics

## ELECTRIFICATION

Market Size

**\$ 8 B** (2021)



DC-DC Converter  
& Inverter



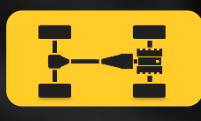
Battery  
Management



Power  
Electronics



Electric Aircraft



Power-train System



## AUTONOMOUS

Market Size

**\$ 18 B** (2021)



Infotainment &  
Telematics



Control &  
Navigation



Cyber  
Security



Autonomous  
Aircraft



ADAS



## DIGITALIZATION

Market Size

**\$ 25 B** (2021)



Mobility



AI/ AR/ VR



Additive  
Manufacturing



Robotics



Connected Plant



# LTTTS Transportation Investments



Vision Based Autonomous Navigation



Electrification Lab



LTTTS Developed Electric Vehicle Prototype ( EV-2)



Industry 4.0 lab

# ELECTRIC AIRCRAFT - COPPER BIRD

## NEXT GEN AIRCRAFT PROPULSION SYSTEM

### INNOVATION

- Electric Motor and Drive Characterization through Model in the Loop concept.
- Flight profile evaluation through simulated dynamic loading

### VALUE ADD

- Reconfigured the existing LTTS Power lab as Copper Bird Test Bed.
- 60% reduction in lab setup time

### MARKET

- Aero Engine OEMs
- Tier-1 – Electrical & Power Systems

### BENEFITS

- Approximately 50% cost benefit to customer.
- Short turn around time
- 30% reduction in Motor design Validation and optimization cycle time



# DEVELOPING MATURE ALGORITHMS FOR AUTONOMOUS DRIVING



## SENSOR FUSION HOME GROWN ALGORITHMS

### INNOVATION

- Lane Detection
- Blind Spot
- Forward Collision
- Park Assist

### VALUE ADD

- > 95% Accurate Distance
- 3D LiDAR Point Cloud Data
- Sensor Fusion Integration

### MARKET

- Auto OEMs
- Auto Tier 1
- Sell-able IP

### BENEFITS

- Reduced Go-to-Market time
- Improved Quality and reliability
- Optimized Operational cost

# Where will the growth come from...

