One-tenth of human life is spent travelling,
We help make it safer

# AUTOMOTIVE ENGINEERING

## HCL ENGINEERING AND R&D SERVICES

# The Environment Today

Technologies like mobility and natural user interface, together with audio-video experiences are impacting all consumer centric industries including the automotive segment. Unfortunately, most of the experiences these technologies enable are meant for passengers, not drivers. The automotive industry is focusing on distraction-free convergence to provide better and safer experiences through predictive driving support, communications exchange systems, and disaster information networks. The best is yet to come, and we are just scratching the surface of what a safe, yet converged world could be.

# Automotive service offerings

- End-to-end driver assistance product development and production support
- Designed DAS ECU/Imaging algorithms for NA, EU and Japan road conditions
- DAS ECU Vehicle integration, Test drive and Demo support
- Integrated multiple DAS applications on to a single ECU platform
- HCL Imaging experts co-authored 2 patents with an Auto Tier 1

## Telematics

- Extensive experience of developing AUTOSAR components, multiple layer integration and testing for EU/NA Tier 1s

## Safety Critical

- HTML 5/ OpenGL ES and 3D Graphics
- Smartphone Integration – NFC based framework by HCL

## Hybrid/Electric tech-NA/EU OEM

## Active Safety/ Driver Assistance

- Association with Ford on Open XC platform– HCL being first post Open XC launch
- Connected car app framework support
- Telematics Platform Development/Independent Validation/Launch Support
- Development of Automation test platform for HUD screen verification
- Supporting next generation radio and service delivery platform design framework by HCL

## Auto SAR– As 4.0

- Experience in design and development of safety critical products.

## Active Investment

- Development and simulation of Hybrid Powertrain ECU sub system development and simulation
- Open and Closed loop testing and simulation
- Battery Electric Vehicle subsystem development, vehicle integration, on road testing and production support

# Services and Solutions

## Embedded Systems

- Telematics
- Instrument Clusters / HUD
- Advanced Driver Assistance System
- Powertrain/HEV/BEV
- Body Electronics
- Infotainment/ Navigation

## Driver Information System

- Instrument cluster application software
- Flexible GUI Configuration
- Diagnostic tool development
- Mechanical Styling
- Verification and Validation
- Develop Instrument clusters

## Infotainment

- HMI and graphics
- Audio
- Video
- Connectivity
- Navigation

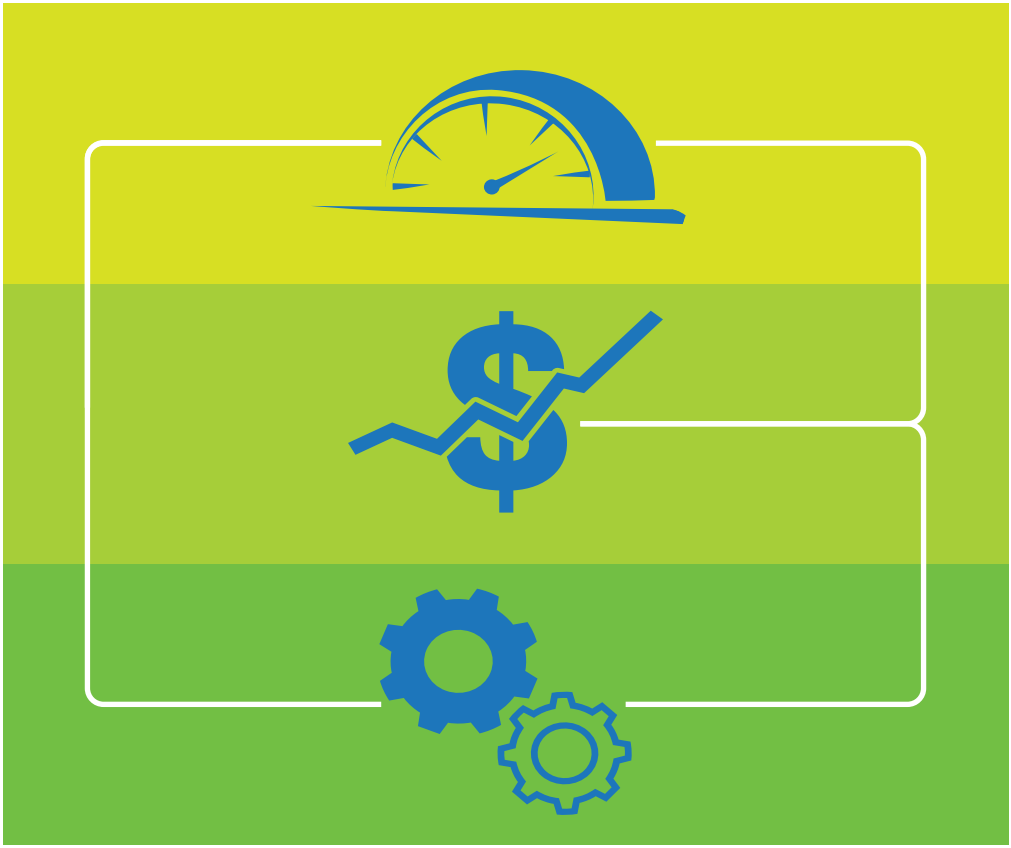
## Engineering Design

- Body/ Exterior
- Interiors
- Chassis, Suspension and Brakes
- HVAC
- Powertrain
- Engine Compartment
- Hybrid/Electric Vehicle

## Powertrain

- ECM, Powertrain Simulation/EV ECUs
- ECM enhancements/ testing, Rapid Prototyping- Electric Vehicle Controller
- Power Distribution Unit
- Dedicated Imaging CoE

# Service Line Units



**Acceleration**
- Platform Acceleration Suite
- Innovation Platform Enablement

**Value**
- eDAT
- VAVE

**Technology**
- Product Intelligence
- Internet of Things

# HCL in Automotive

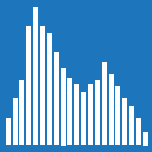
One million+ vehicles consist of HCL designed products

14+ years of experience in automotive alone. Worked with most of the major OEMs across NA and Europe geographies

CMMi Level 5 and TS16949 certified

HCL leads the market in interiors & chassis and telematics with experience in end-to-end product development

Ability to leverage adjacent verticals such as consumer electronics, aerospace, medical devices



Expertise in active safety - 12+ years of experience, 50+ platforms

HCL works as strategic partner with its clients through innovative commercial models such as risk / reward, output based pricing, product ownership and joint ventures

Labs and COEs -cloud, android, HMI, imaging, mechanical COEs, automotive lab/labCar for automated testing

In-house labs offering low volume manufacturing and prototyping capabilities. Dedicated teardown lab for competitive benchmarking

# Experiences Engineered for our customers (Case Studies)

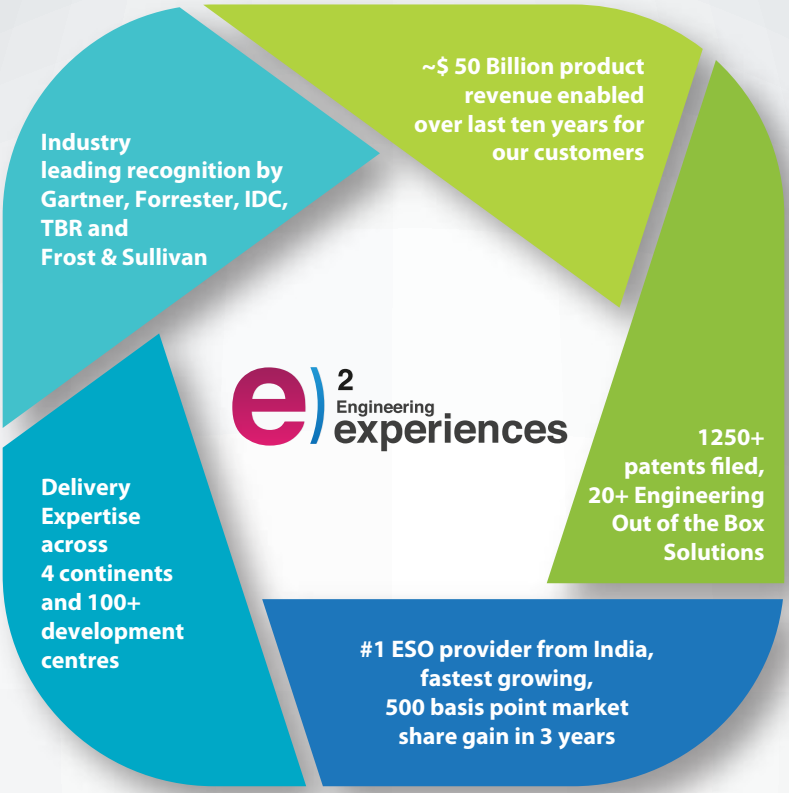
1. Embedded software development, testing, in-vehicle communications and diagnostics for electric car sub systems for a US based Auto Tier-1. Activities performed included vision algorithm design, performance tuning and customization

2. For an Automotive Tier-1, HCL was able to attain potential revenue savings of $50M against the targeted saving of $40M by identifying lower cost, higher productivity suppliers. To do this we built upon the customer's proprietary cost modeling technique and identified and coordinated with vendors at a global level

3. Involved in multi-geo OEM production programs which involved multiple projects in automotive active safety systems along with complete lifecycle support for in-car systems. Signed a multi-year master services agreement and developed an ODC for offshore leverage

4. For a US-based Automotive OEM, HCL designed and maintained APIs for the embedded Java apps that would run on their next generation head unit. Remote diagnostics specifications for the HMI framework were designed and maintained. We were also involved in the understanding and analysis of their service delivery platform

Look here




Hello, I'm from HCL's Engineering and R&D Services. We enable technology led organizations to go to market with innovative products and solutions. We partner with our customers in building world class products and creating associated solution delivery ecosystems to help bring market leadership. We develop engineering products, solutions and platforms across Aerospace and Defense, Automotive, Consumer Electronics, Software, Online, Industrial Manufacturing, Medical Devices, Networking and Telecom, Office Automation, Semiconductor and Servers & Storage for our customers.

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