# TCS Automotive Engineering Solutions

Engineering and Industrial Services

The global automotive industry is on the cusp of a major transformation. Automotive manufacturers are working on a range of technologies to make vehicles connected, smart, and efficient. Market trends and product launch plans of leading industry players indicate that hybrid and electric cars will be an enormous opportunity soon. Simultaneously, original equipment manufacturers (OEMs) have expanded their global footprint by venturing into emerging markets. There has been an increased investment in research activities around the connected car, with OEMs focusing heavily on advanced engineering, embedded technologies, wireless communications, and analytics. Companies are trying to reduce manufacturing cost by improving operational efficiency, and leveraging new generation methods such as additive manufacturing to improve parts-design capabilities and optimize supply chain management.

Tata Consultancy Services' (TCS') Automotive Engineering Solutions help OEMs and their suppliers digitize the product value chain and thereby minimize product development costs and reduce the time to market. We also help companies develop smarter offerings using our IT expertise.
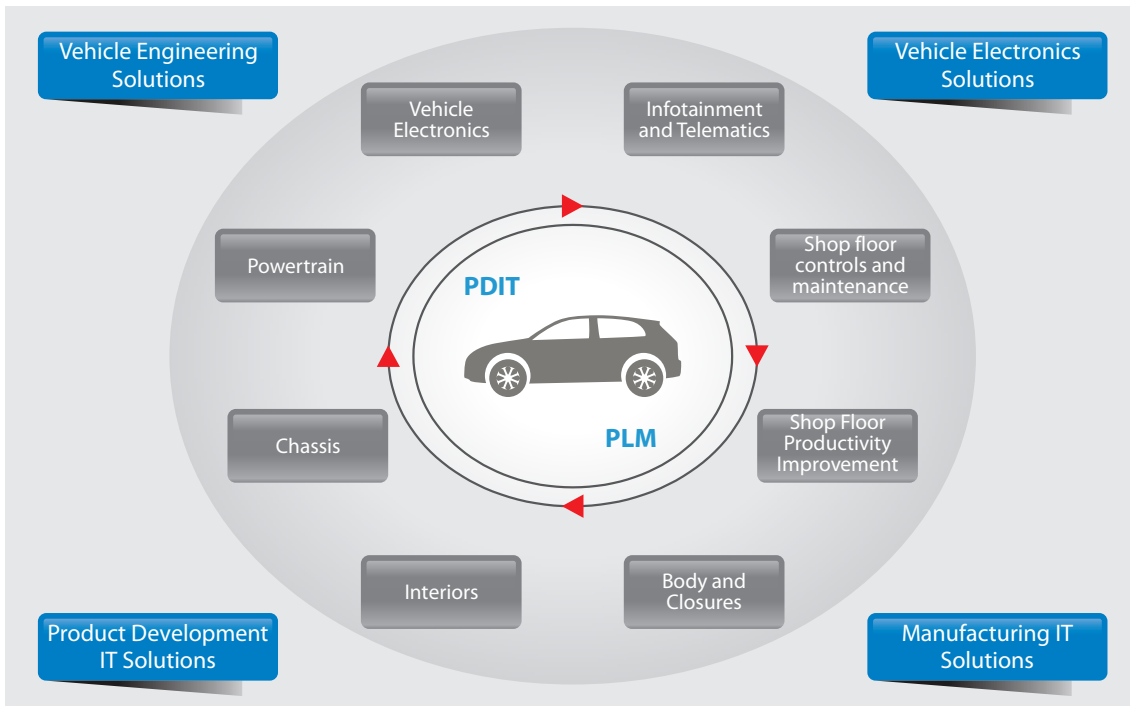
## Overview

The move toward smart, connected cars is driving a proliferation of electronics and embedded sensors. At the same time, automotive manufacturers seeking to enter lucrative emerging markets realize the need for new variants and local sourcing, to make their products market-relevant. Improving collaboration among geographically dispersed design facilities, enabling reuse of intellectual property, managing product variability, and ensuring better supplier-OEM interactions, have become increasingly important. However, both OEMs and their suppliers are faced with multiple challenges in ensuring product development efficacy and cost competitiveness. Non-standard tool sets, manual data reconciliation, and high costs of maintaining the product development IT landscape further impede operations. Automotive companies therefore need a partner who can help them reimagine their entire value chain, from product development, sourcing, and manufacturing to testing and compliance.

TCS' suite of Automotive Engineering Solutions provides you with end-to-end technology support for the design, development, manufacturing, and supply chain management of smarter vehicles. Our services encompass vehicle engineering, vehicle electronics, and IT solutions for manufacturing and product development. We offer design and engineering capabilities for multiple vehicle components, along with software and hardware development of different vehicle electronics systems such as infotainment consoles, ECU's and enclosures, and diagnostic devices. Additionally, we help you digitize your manufacturing control and monitoring systems, and the entire product lifecycle management (PLM) processes.

## Our Solution

TCS' portfolio of Automotive Engineering Solutions includes:

- **Vehicle engineering**: TCS provides mechanical product development capabilities for vehicle body, power train, chassis systems, as well as for various other subsystems such as roof, fuel, and gear shift.

- **Vehicle electronics**: We provide software, firmware, and hardware development support, and help with requirements gathering, modeling and code generation, verification, validation and testing, as well as R&D. We also help with reverse engineering, as well as the development of measurement, calibration, and diagnostic (MCD) tools.

- **Manufacturing IT**: TCS' offerings for manufacturing IT solutions covers manufacturing execution systems (MES), control systems integration, enterprise asset management, digital manufacturing, global sourcing lifecycle management, strategic sourcing, and supplier quality assurance services.

- **Product development IT (PDIT) and Product Lifecycle Management (PLM)**: PDIT and PLM services include consulting, implementation, operations and maintenance, knowledge-based engineering automation, and program management.

**An Overview of TCS' Automotive Engineering Solutions**

## Benefits

TCS' solutions and services extend the following benefits to automotive companies:

- **Reduced time to market**: Shorten the time to market for new products using our design and development services, and simulated performance tests.

- **Smarter offerings**: Offer smarter and innovative automobiles to your customers, enabled by TCS' solution accelerators and superior consulting and implementation services.

- **Enhanced operational efficiency**: Boost your operational efficiency by streamlining business processes across the value chain–business units, joint ventures, partners, and suppliers.

- **Ease of global expansion**: Ensure consistency in processes across geographies, and operate seamlessly in new markets, by deploying local manufacturing technologies and enforcing common practices.

- **Cost savings**: Enhance your manufacturing processes with the help of digital simulators, and utilize existing intellectual property to minimize product development costs.

## The TCS Advantage

By partnering with TCS, you gain from the following advantages:

- **Comprehensive offering**: We provide support for the entire automotive value chain–from product development to manufacturing and supply chain management.

- **Deep domain knowledge**: We have executed multiple solution development, implementation, and support projects for both OEMs and leading suppliers. This has provided us with in-depth knowledge of the critical processes and issues facing the industry.

- **Dedicated resources**: TCS has its own manufacturing facility in Goa, India, as well as an R&D center in Pune, to specifically cater to auto makers' requirements.

- **Leading service provider**: TCS has been rated as the leading service provider for the automotive industry by Zinnov Management Consulting (Zinnov) in its report, Global R&D Service Providers (GSPR) Rating 2013.

## About TCS' Engineering and Industrial Services Unit

For over two decades, TCS has offered engineering and manufacturing solutions to leading companies from the discrete and process industry domains. Recognized as a Leader by Zinnov in its Global R&D Service Providers (GSPR) Rating 2013 across multiple industry verticals, TCS enables organizations to drive business transformations to realize product strategy, enhance manufacturing oversight and availability of assets, and enable emerging markets entry.

Designed to foster product innovation, improve operational efficiencies and accelerate time to market, our solutions are differentiated by our customer centric, process-driven approach, proprietary products and tools, strategic alliances, investments in emerging technologies and alignment with domain-specific quality paradigms.

Our state-of-the-art innovation labs and centers of excellence develop cutting edge solutions for embedded systems, avionics, high performance computing, control systems, and electro mechanical manufacturing. Our offerings provide end-to-end coverage for the engineering and R&D lifecycle encompassing New Product Development and Product Lifecycle Management, Plant Floor Solutions, and Geospatial Technology Solutions.

## Contact

*For more information about TCS' Engineering and Industrial Services Unit, visit:* ***www.tcs.com/eis***
*Email:* ***eis.marketing@tcs.com***

**About Tata Consultancy Services Ltd (TCS)**

Tata Consultancy Services is an IT services, consulting and business solutions organization that delivers real results to global business, ensuring a level of certainty no other firm can match. TCS offers a consulting-led, integrated portfolio of IT and IT-enabled infrastructure, engineering and assurance services. This is delivered through its unique Global Network Delivery Model™, recognized as the benchmark of excellence in software development. A part of the Tata Group, India's largest industrial conglomerate, TCS has a global footprint and is listed on the National Stock Exchange and Bombay Stock Exchange in India.

For more information, visit us at **www.tcs.com**

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