TCS Autoscape™ – A neural automotive solution for connected vehicles

Manufacturing

Abstract

Technology plays a key role in defining the future of business, customer experiences, and product or service behaviors of the agile automotive enterprise. TCS terms this future as Neural Automotive, where the neural traits of sense, perceive, and act will be crucial not only in the final product and service, but also during the product development cycle. In five years from now, a great majority of new vehicles are expected to be connected[1]. This will allow vehicle manufacturers many opportunities for delivering personalized customer journeys both in and out of the vehicle. These opportunities in turn will pave the way for innovative business models, enabling monetization of vehicle and driver data. To address these market opportunities and to accelerate customers' journey in the connected vehicle space, TCS has developed Autoscape™ - Connected vehicle solutions. This suite of solutions offers onboard and offboard automotive expertise, from cloud and software development to user experience and analytics, along with focused business advisory services. The solutions are enriched with TCS' deep understanding of the allied industries essential to an integrated ecosystem, and research and innovation capabilities through patented platforms, solutions, and assets. TCS is well positioned to bring the future of Neural Automotive to the benefit of customers in the connected vehicle space and drastically improve their ability to offer a seamless experience to their end-consumers.

Overview

Global automotive manufacturers have been trying for several years to gain new insights about vehicles and customers in order to provide more personalized customer experiences and to monetize data. On the other hand, other ecosystem players such as suppliers, mobility providers, and fleet companies have been expanding their connected vehicle offerings to improve their operations, provide better customer experience, and enable new business models. There is a need for a secure and scalable connected vehicle platform to achieve these objectives.

TCS has created an integrated solution to tackle the prevalent challenges and generate opportunities through Autoscape™, which provides the scalability and security required for building the connected vehicle as a digital experience platform. The solutions provide personalized customer experience in and out of the vehicle and enables data monetization opportunities derived through analytical insights. They also provide a comprehensive toolset for managing customer consent for data collection, facilitating the sale of data through a digital subscription platform. With these features, vehicle manufacturers can manage the vehicle life cycle and ensure customer loyalty.
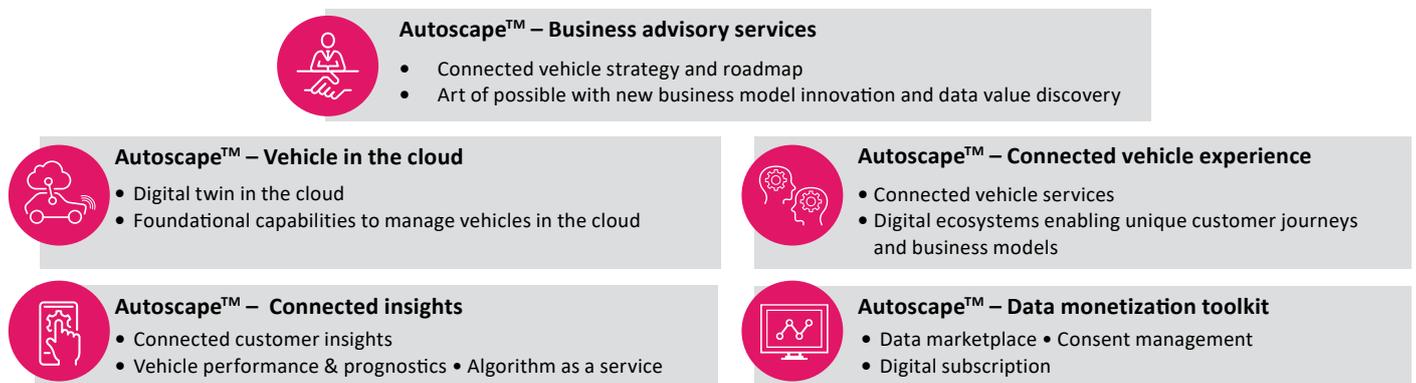
Autoscape™ – Business advisory services
- Connected vehicle strategy and roadmap
- Art of possible with new business model innovation and data value discovery

Autoscape™ – Vehicle in the cloud
- Digital twin in the cloud
- Foundational capabilities to manage vehicles in the cloud

Autoscape™ – Connected vehicle experience
- Connected vehicle services
- Digital ecosystems enabling unique customer journeys and business models

Autoscape™ – Connected insights
- Connected customer insights
- Vehicle performance & prognostics • Algorithm as a service

Autoscape™ – Data monetization toolkit
- Data marketplace • Consent management
- Digital subscription

Figure 1: Autoscape™ - Connected vehicle solutions

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[1] Which-50; 200 Million Connected Cars By 2025 Says Juniper Research; September 2, 2020; https://which-50.com/200-million-connected-cars-by-2025-says-juniper-research/

Our solution

TCS Autoscape™ comprises the following modules (see Figure 1):

- **Business advisory services** define strategies and roadmaps for connected vehicles based on the customer's vision, capability assessment, and key challenges. Rapid growth and evolution of the ecosystem, technologies, and business opportunities, along with changing customer expectations and regulations mean that even existing strategies need constant renewal. We assist customers throughout the value chain, from ideation, new business model innovation, and analytics value discovery to differentiated customer experience design, data monetization, and connected customer analytics.

- **Connected vehicle experience** offers platform-based solutions for personalized digital connected vehicle experiences, enabled through the cloud. These also include unique and differentiated capabilities such as vehicle personalization, subscription and pay-as-you-go services, blockchain-based payments,and digital key.

- **Connected insights solution provides** original equipment manufacturers (OEMs) and partners in the automotive segment with actionable insights from the data received from the connected vehicle ecosystem. This capability includes offerings such as connected customer insights, journey intelligence, vehicle predictive maintenance, vehicle-as-a-data model, algorithm-as-a-service, and data track and trace. The solution also includes pre-built connected insights and provides a self-serve and collaboration environment.

- **Data monetization toolkit** enables OEMs and partners in the automotive ecosystem to develop new business models with various opportunities for data monetization. This can be offered as a full-service portfolio or integrated individually to the customer's existing ecosystem. This toolkit opens opportunities for data monetization through TCS' data marketplace platform integrated with consent management and subscription management platforms.

Benefits

TCS Autoscape™ enables customers to achieve the following benefits:

- **Enhance customer experience:** We provide personalized and differentiated customer experience with our connected vehicle use cases by gaining a deep understanding of customer journeys using our connected insights solution.

- **Accelerate value realization:** In a very competitive market, a modern and flexible platform with short time to market for launching new features is important to gain customer confidence. Our solutions can be integrated with enterprise systems seamlessly, allowing our customers to realize business value in a short timeframe.

- **Leverage ecosystem partnerships:** We have integrated with ecosystem partners and third-party services in a secure and efficient manner to deliver ecosystem-related benefits to customers.

- **Data monetization:** In addition to our data monetization toolkit, we also help customers develop holistic connected vehicle strategies to build innovative features and monetize connected vehicle data.

- **Data privacy:** As the number of connected vehicles rise, managing vehicle and customer data will become complex due to regulations. Our solutions enable customers to manage customer consent and privacy regulations and reduce legal costs.

- **Analytics-driven operational efficiency:** The analytical insights gained from our solutions will help customers to reduce their operational costs significantly and achieve operational efficiency.

Why TCS

TCS has enabled global automotive OEMs to develop vehicle onboard and offboard capabilities. Autoscape™ brings together these experiences and cross-industry expertise relevant to the connected vehicle ecosystem to help customers accelerate their connected vehicle journeys, as described below:

- **Leading domain and technology expertise:** TCS supports an agile automotive enterprise to use technology for defining its business model and leveraging ecosystems to drive a common purpose, thus helping it embrace neural traits in its operations. TCS has many years of experience in connected vehicle development alongside long-standing relationships with multiple leading OEMs. Our technical team adopts agile methodologies to cater to the bespoke business requirements of our customers.

- **Industry partnerships and alliances:** We lean into our strategic partnerships with hyperscale cloud providers and we have leveraged external and internal partnerships to build best-in-class connected vehicle platforms.

- **Comprehensive connected vehicle portfolio:** Our range of proprietary full-stack capabilities include Connected Service Delivery Platform (SDP), In-Vehicle Infotainment, and Connected vehicle integration. With TCS Autoscape™, we also bring our unique research and innovation capabilities through patented platforms, solutions, and assets to enable our customers' connected vehicle vision.

Contact

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About Tata Consultancy Services Ltd (TCS)

Tata Consultancy Services is an IT services, consulting and business solutions organisation that has been partnering with many of the world's largest businesses in their transformation journeys for over 50 years. TCS offers a consulting-led, cognitive powered, integrated portfolio of business, technology and engineering services and solutions. This is delivered through its unique Location Independent Agile™ delivery model, recognised as a benchmark of excellence in software development.

A part of the Tata group, India's largest multinational business group, TCS has over 500,000 of the world's best-trained consultants in 46 countries. The company generated consolidated revenues of US $22.2 billion in the fiscal year ended March 31, 2021 and is listed on the BSE (formerly Bombay Stock Exchange) and the NSE (National Stock Exchange) in India. TCS' proactive stance on climate change and award-winning work with communities across the world have earned it a place in leading sustainability indices such as the MSCI Global Sustainability Index and the FTSE4Good Emerging Index. For more information, visit www.tcs.com.