Automotive Engineering Solutions
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Engineering a better world

We believe it’s our people that make the difference

Designing and engineering products that change the world, improving efficiency and safety, environmental impact and time-to-market. We work with our customers to realize their vision, providing resources and services to get them from where they are today to where they want to be tomorrow.

Our customers are making more products, faster and better than ever before and it’s the millions of people who benefit from those products we help to make that inspires us to constantly innovate, develop better solutions and deliver a better experience for everyone.
We work with our customers to realize their vision, providing solutions and resources to get them from where they are today to where they want to be tomorrow.
Why Tata Technologies?

Product Development is at the core of everything we do

Global presence and diverse resource pool to deliver complex product development programmes cost effectively helping customers realize better products

Our Globally Distributed Execution Model (GDEM) with a balanced approach between onshore customer intimacy, and offshore capacity and cost-effectiveness in delivering complex projects has been recognized by our Customers and Analysts.

End-to-end product management offering leveraging our product engineering expertise to deliver IT solutions to the manufacturing industry which help realize better products

Deep industry knowledge of product development combined with an intelligently different approach to technology and IT solutions that enable our clients realize better products that are better, faster, safer, greener, and experiential.

Established frameworks based on our expertise to reduce development time

Deep knowledge of the enterprise solutions and the manufacturing industry has helped us build frameworks that reduce the turnaround time for the customers by 30-40%.

Partnerships and alliances with the best in the industry

Our strategic alliances with the best in the industry, including the likes of PTC and Siemens, ensure innovative solutions to help our clients take the industry challenges head on, prepare for the future and deliver better products.
Our Core Services

**Engineering services** for the manufacturing sector

*Tata Technologies - a leader in product engineering services* - caters to the global manufacturing industry; enabling ambitious manufacturing companies to design and build better products.

**Engineering, Research & Development**

Provide outsourced engineering services for our manufacturing customers globally to help them conceive, design, develop and realize better products.

**Digital Enterprise Solutions**

Help manufacturing customers identify and deploy emerging technologies, tools and solutions to manufacture, service and realize better products.
Core Domains in the Automotive Industry

- Market Definition & Product Strategy
- Connected
- Embedded
- Concept Styling & Vehicle Architecture
- Detailed Engineering & Design
- Product & Process Validation
- Production Readiness
- Manufacturing Process & Resource Planning
- Production Launch & Continuous Improvement
Off-shore Engineering Services

We are a pioneer of global engineering outsourcing

We developed the benchmark process for global off-shore delivery of engineering services 25 years ago. This experience, combined with streamlined processes and practices enables us to quickly deploy off-shore teams to develop or directly connect with existing PLM, data management and company-wide systems.

Our Global Delivery Execution Model (GDEM) ensures that off-shore activity is invisible to the on-site, client technical centre. Team members on-site manage the distribution of work and the Tata Technologies technical lead will assign this to the off-shore engineering and design resources as well as having the responsibility for cultural liaison and the quality of work.

Managing and delivering projects in this way means that local workloads and project management becomes inherently non-geographic. On-site and near-shore teams instantly feel at home dealing with off-shore resources. There are no technical barriers and in some situations work is able to continue around the clock, enabling completion of tasks and projects in record time.
Our workforce, comprising thousands of skilled designers, engineers and program managers, is the best in the business.

Automotive Product Development

Setting the standard in Automotive Engineering

Tata Technologies helps automakers design, engineer and validate the vehicles of the future. Our engineering and design services provide clients with the capacity to innovate, creating new products; from components to full vehicles. Our workforce, comprising thousands of skilled designers, engineers and program managers, is the best in the business.

This extensive knowledge and experience is accessed through our Global Delivery Execution Model (GDEM), combining off-shore, near-shore and on-site talent for optimal execution of design and engineering programs.

Whatever your project requirements, you can be assured that Tata Technologies has the skills, knowledge and resources to realize the full potential of every task. From small-scale IT implementations to complete product development, our experts are equipped to design, develop and engineer solutions that you can count on.
Automotive Engineering Capabilities

Automotive capabilities throughout our core domains, manufacturing engineering and complementary services, enable complete automotive product development. Working with our customers we use best in-class processes, tools and technologies, providing better access to our global skill base (including domain experts) with fast response times in a tailor-made or turnkey, value-driven package.
Better Solutions for the Automotive Industry

**Improving** engineering, design and manufacturing

Our combination of deep industry knowledge, breadth of value proposition and a proven Globally Distributed Execution Model (GDEM) positions Tata Technologies as the premier product development and manufacturing execution partner for the industries we serve.

The Tata Technologies value proposition is presented as a portfolio of Better Solutions, utilizing the full value of a technology-driven workflow to enable our clients to enjoy more products, delivered faster and better. Each can benefit independently, however when an organization pursues optimization across the complete product realization lifecycle, then people, processes and technology can be combined to achieve the seamless execution of product and manufacturing goals.

Tata Technologies has played a key role in how manufacturers around the world approach lightweighting with our 5R Rightweighting methodology; a tried and tested formula that delivers the right performance at the right price, by applying the right amount of the right material in the right place.
• Identifying core and non-core activities to define effective sourcing strategies.
• Identifying sources of value addition, including essential non-value-added (ENVA) activities through our proven strategies.
• Mapping skills with organizational structures from formal and informal roles and responsibilities.
• Defining change roadmaps to maximize product creation and innovation activities.

Product Digitalization
Goi ng Digital Across the Entire Product Realization Lifecycle

• Defining strategies to reconnect management with products, enabling visual decision-making with automated reporting and real-time analytics.
• Aligning people, processes and technology which includes learning and skill development programs.
• Enabling smart, virtual and digital factories (towards Industry 4.0).
• Defining PLM and IT integration landscape, technical architecture, digital roadmaps, enabling IT legacy application retirement strategies.

Effective Collaboration
Optimizing Digital Product Data for Better Knowledge Management

• Defining enterprise data models, standardising common message models, security policies, corporate IT standards and governance.
• Converting data into intelligent information, coupled with feedback loop learning mechanisms.
• Leveraging cloud, big data, IoT and hyper-connectivity to enable data mining and traceability.
• Implementing data migration solutions (Extract-Transform-Load framework).

Right Sourcing
Designing and Implementing Demand Fulfilment Strategies

Tata Technologies helps businesses optimise valuable and scarce engineering resources. Using proven models leveraging globally distributed engineering talent and capacity, we define and implement sourcing strategies to free up the capacity to create and innovate.

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Business Transformation
An Intelligent Approach to Automotive Business Transformation

Collaborating in a customer’s digital journey with an innovative approach and incorporating best industry practices (DevOps and Agile) through Digital Customer Experiences, IIOT Solutions, Digital Manufacturing Automation, Next Gen ERP and supply chain solutions, Analytics, Mobility and Connected platforms.

• Well defined project schedules, charters and project management plans, along with the establishment of local project organization and relevant working committees.
• Build and Test (BAT) of all business process requirements based on a formulated blueprint.
• Finalization of the project “go-live” stage by ensuring complete preparation through business support activities.

Global Engineering Services
Global Engineering Talent At Your Fingertips

Tata Technologies provides access to global talent and capacity to deliver “best-in-class” operations for cost-effective, global on/offshore engineering centres in a dedicated or shared engagement model depending on your needs.

• Assessing product design and manufacturing engineers to establish what are core & non-core activities.
• Defining and implementing Global Engineering Centres (GECs), near-site, near-shore or offshore with best in class processes and operations for collaborative outsourcing.
• Optimizing skill usage against existing processes and tools to improve operations.
Case Studies

Delivering results, manufacturing success

As a pioneer of technology solutions within the automotive sector, Tata Technologies measures success against that of our clients. Analyzing the impact of our work in attaining their goals, exceeding expectations and delivering real results.

These case studies are just some of the hundreds of success stories we have enjoyed over the past 25 years. They demonstrate the capabilities present throughout our organization, how they work seamlessly with one another and how we pioneer new technologies for our customers around the world.

It’s this expertise in automotive engineering that enables us to deliver more products, faster and better than ever before. Driving efficiencies throughout the engineering chain, from conception to launch and beyond.
Embedded Centre of Excellence

GKN – Automotive E-Mobility Solutions

GKN Automotive is a global leader in eDrive technologies, the architects of an electrified future. Its innovation, expertise and global footprint gives automakers the ability to drive a sustainable future.

The centre, spread over 12,650 sq ft, houses a design studio, lab stations, meeting/conference rooms, and a wellness centre. The centre leverages Tata Technologies’ expertise in electric and embedded systems to work on GKN Automotive’s next-generation e-Drive technologies. The new software engineering centre was completed in just six months (work started in March 2020) overcoming the peak pandemic disruptions.

Liam Butterworth
CEO, GKN Automotive

This is an important initiative for GKN Automotive. Collaborating with Tata Technologies to build this centre is critical in enabling us draw upon the world-class software engineering talent in India and leverage Tata Technologies’ product engineering capabilities. Our e-Drive technologies have already put us in a market-leading position, but this initiative will help us grow further, expanding and improving our technology capabilities.

Solution

- Complete set up of an Offshore Development Centre for GKN-Automotive
- AUTOSAR BSW configuration and integration
- Facilities, administration, human resources completely managed by Tata Technologies.

Result

- On-time setup achieved for a fully functional centre
- Delivering the ePowertrain ECU software development & AUTOSAR configuration & SW integration
- All compliance and quality targets met basis the regulations and client specifications
Product Development Program

High Volume Passenger Vehicle

The program was a milestone for the Indian engineering services market as it was the first time a full vehicle had been outsourced to the Indian private sector.

The company is an internationally reputed Auto OEM offering world-class premium products in the global market. The company’s headquarters are located in the UK and they employ over 30,000 people across the world.

Solution

- Delivered a new mid-size SUV to replace one of the client’s previous models.
- The scope was extended from concept to production launch, including engineering management.
- Delivered many of the systems and subsystems including overall program management and the complex challenge of system and zone integration.
- The team managed all of the supply chain contributors and the entire validation and launch process for the vehicle.
- Used our Global Delivery Model (GDM) to deliver the project.

Result

- Body engineering investment was 25% less than if done in-house
- 7-seat layout in a typical 5-seat footprint
- The program was delivered on time
- The resulting vehicle beat quality targets
PLM 3DExperience Implementation

All Electric SUV Manufacturer

A global EV start-up specializing in high-performance, premium electric, autonomous vehicles, based in China. From its very inception to launching its first electric SUV, Tata Technologies has propelled the company through PLM services at every stage.

With the design for their new SUV all set, it was a huge challenge to pull off the dream with ‘Teamcenter 10.2’.

Solution

- The entire implementation scenario was deftly split into five key domains: Product Configuration, Data Release/Change Management, Enterprise BOM, Product Design and Collaboration and Digital Manufacturing.
- Novel implementation, migration and PLM transition strategy along with methodized Organizational Change Management (OCM) and deployment planning supported by domain experts and solution architects.
- Developing in-house deployment tools for swift execution.
- A tightly interwoven execution model, dedicated PMO and on-site & offshore delivery service models are the reasons behind the success of this project.

Challenge

- Migration from Teamcenter 10.2 to 3DExperience 2016x
- Stringent timeline (3 months)
- Full-scale implementation of PLM solution
- Get a revolutionary new vehicle into production

I have never seen or heard of any company implementing a PLM system in just 4 months in my 25+ years of professional life but Tata Technologies managed to pull it off.

- Chief Information Officer (Global EV Startup)

Result

- Implementing a new PLM System
- Migrating complete production data for two vehicles from CATIA V5 to CATIA V6
- Zero impact on the vehicle production timeline
- Delivered in record time
Customer Experience Management (CXM)

Tata Technologies was instrumental in supporting this automotive giant by implementing a customized IT system that ensured synchronization between dealers and customers while ensuring customer satisfaction as the pivot.

A Japanese public multinational - a manufacturer of automobiles, motorcycles and power equipment – that has been operational since 1959. The client was confronted by an issue of synchronisation between their pivotal business operation units.

Solution

- Instrumental in creating an application that managed critical transactional elements.
- Built an analytical application that complemented the transactional application created.
- Implemented a pilot project with multiple dealers associated with the client.
- Incorporated critical feedback from the pilot project and actionable recommendations were acted upon.
- A distributed help desk management system was developed to ascertain a customer-centric approach to business.

Challenge

- Quick turnaround time for system integration
- Challenge of rapidly expanding channel partners
- Application availability for 2000+ touch points
- Data management and claim cycle reduction

Result

- Last mile inventory connectivity deduced
- Close to 450,000 vehicles sold per month
- 2 million+ vehicles serviced per month
- An expected 1000 dealers to be added within the current set-up in the future
Tata Technologies is a global engineering and product development digital services company focused on fulfilling its mission of helping the world drive, fly, build and farm by enabling manufacturing clients across the automotive, industrial machinery and aerospace verticals realize better products and drive efficiencies in their businesses, leading to the development of products which are better for the end customer, environment and society at large.

There are two components to the company’s value proposition; the first one being outsourced product engineering services for our clients helping them conceptualize, design and develop better products, and the second one is helping them identify and deploy technologies and solutions that are used to manufacture, service and realize better products. These offerings are delivered through two lines of business: a) Engineering, Research and Development (ER&D) services, and b) Digital Enterprise Solutions which includes offerings in Connected Enterprise IT (CEIT) and Product Lifecycle Management (PLM) services and products.

We are committed to ‘Engineering a better world’ through collaborative innovation and adoption of sustainable technologies and processes. Tata Technologies has over 8600 employees serving clients across three continents through our uniquely balanced on-shore/offshore global delivery model that enables us to provide aligned on-shore customer proximity required to support the iterative nature of product development services together with the capacity and cost-effectiveness of offshore locations.
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