

Product Engineering Solutions

Engineering and Industrial Services



To stay ahead of competition, manufacturing enterprises need to reduce the product design and development time, maximize profits and strengthen quality. At Tata Consultancy Services (TCS), with the help of right customer engagement and management approach and latest methods and technologies, we provide wide range of value added solutions in areas where skills are in short supply. Our operational excellence approach across the entire product development lifecycle, directly impacts the cost and schedule of product design and development activities.

Overview

To contain product development costs and times, skills in product configuration become crucial. For manufacturing unit to create winning products, one needs to synthesize ideas and concepts globally, adopt relevant processes and technologies, and evolve mechanisms that allow global teams to collaborate actively and effectively.

This is possible with assistance from an experienced partner with the requisite expertise on different technologies. At TCS, we are abreast of industry trends; our experience in product design and development across various industry verticals such as automotive, aerospace, industrial machinery, medical devices, hi-tech, retail and consumer goods; scale and flexibility come together to create the right solutions for you. Our inputs score on cost, quality, speed and innovation, while improving your product design and development processes.

Why TCS

As per Industry Analyst- ARC Advisory Group; "ARC is particularly impressed with the methodology Tata Consultancy Services (TCS) uses to manage customer engagements. Their approach reflects to a high degree, an Operational Excellence (OpX) approach to ensuring client satisfaction."

At TCS, we have a skilled talent pool with rich project and consulting experience in various domains within the engineering services space. Having worked with global organizations, our professionals have the requisite skills to identify the right solutions for your requirements. Apart from this, we derive our strengths from:

Ability to work across entire product development cycle from product planning, conceptualization, design, testing, tooling, prototyping, production to after-sales market services; coupled with solutions in embedded, supply chain management, production management and capital asset management help you to develop better product. We deploy industry accepted NPD and NPI processes for achieving your product development objectives.

Research and Development initiatives, with a strong industry thrust, which focus on methodologies and applications of formal optimization techniques, strengthen our solutions from the technical and process perspectives.

Alliances with technology providers like ANSYS, Siemens PLM Software, Dassault Systemes; industrial enterprises like CMTI, National Aeronautics Lab and Hindustan Aeronautics Limited; and with academic institutes like IIT Chennai, and IISc Bangalore enhance solutions and services.

Operational Excellence to ensure customer satisfaction. With metrics involving measures of performance such as project delivered on time, on budget, with no defects (first time right), finally customer satisfaction is measured.

Excellence in Design through Global Engineering (EDGE), a web-based methodology developed by us for addressing the issues of effective communications, collaboration between your team with us, knowledge sharing, monitoring and reviews, secure version and configuration controls, work flow automation and a digital product development approach.

What we offer

We offer end-to-end services that cater to different aspects of your product life cycle needs. Our services include engineering design, engineering analysis, knowledge-based engineering, and technical publications. Apart from complete product engineering, we have service offerings spanning across the product development cycle:

Engineering Design

Component Engineering

- Plastic Design
- Casting Design
- Sheet metal part, joining and assembly
- Precision Components
- Specialized part design (gears, cams, bearings)

Design Tools/ Enablers

- CAD Software Tools
- Process Tools (FMEA, QFD, DOE, DFX)
- Value Engineering
- Reliability Engineering
- Dimension Management
- Product Costing Tools

System Engineering

- Hydraulic & Pneumatic Systems design
- Equipment Engineering
- Product Design
- Performance/Parametric studies and System Simulation

Engineering Changes

- ECO/ECN maintenance
- Change Impact analysis
- Alternative Designs evaluation
- Component Cost analysis

Consulting

- Engineering Development Process Benchmarking
- Global Engineering
- CAD tool selection, implementation & benchmarking

Reverse Engineering & Prototyping

- Measurement and Digitization
- Product Characterization
- Material characterization and alternative Material analysis

Layouts

- Piping and hose layouts
- Wiring & Harness
- Packaging studies

Engineering Analysis

- Structural
- Thermal
- Non-linear
- CFD
- Design of experiments
- Product design optimization
- Mold flow analysis for plastics
- System Simulation
- Failure analysis
- Fatigue studies

Knowledge Based Engineering

- Design – Analysis – Process Automation
- Engineer-to-order automation
- Custom software development
- Integration of CAD/CAE/CAM software
- Productivity tools development
- Tool automation

Technical Publications

- Product & Process Documentation
- XML and Legacy Conversion
- Interactive Technical Manuals
- Translation
- Process/System Consulting

Engineering excellence in product design and development for major US truck lift manufacturer

A major US truck lift manufacturer was seeking a partner who could leverage its global engineering capabilities in product design and development for faster time-to-market, apart from lowering costs. We developed an offshore delivery center in India supporting multiple development centers of the customer and various lift truck development programs concurrently, while meeting the quality and reliability targets. Our product design and development services included engineering design, modeling, detailing and engineering analysis using CAE and CFD. Our customer engagement model consisted of engineering design and analysis teams working in collaboration with the customer during the entire design cycle ensuring engineering excellence. With our ability to scale up/down the team as per requirement and access to our best practices and process tools we were able to reduce costs for the company ensuring reduction in product design cycle and faster time-to-market.

Contact

To know more about our product engineering solutions, contact corporate.engineering@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

IT Services Business Solutions Outsourcing

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