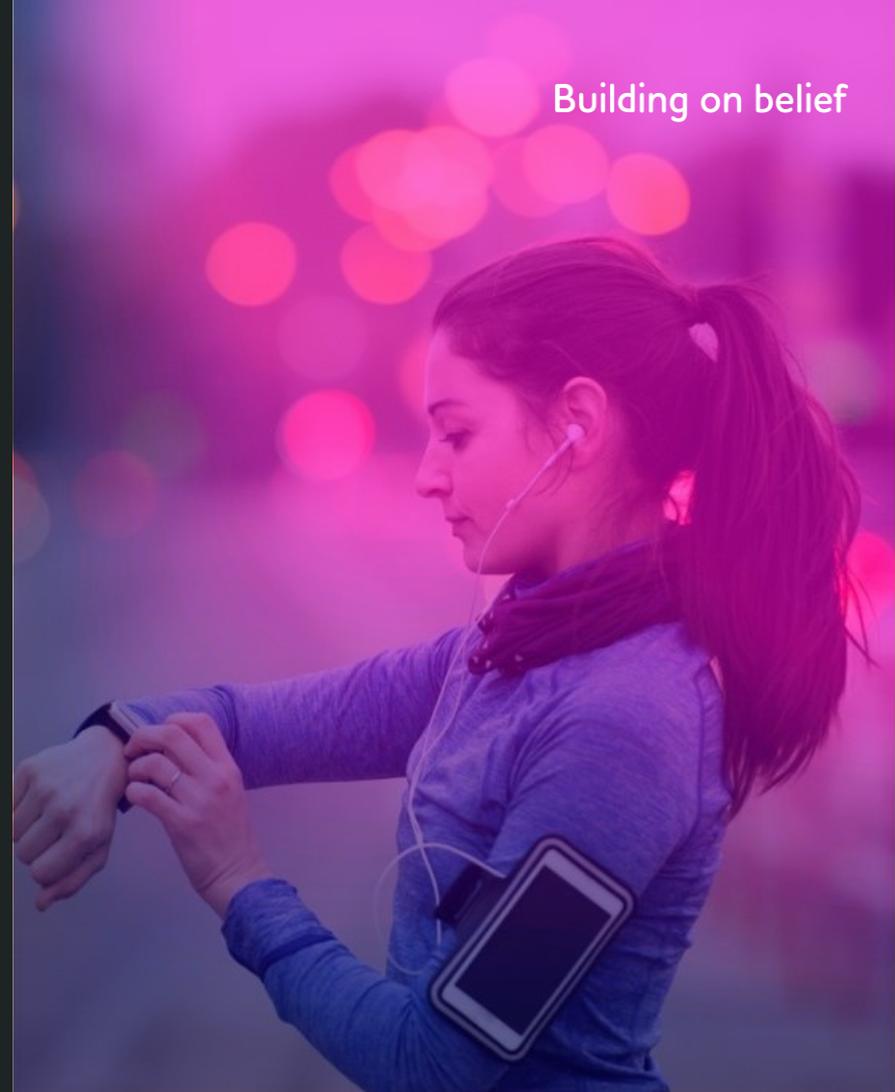# We believe in Bringing Life to Things™

TCS IoT Offerings

TCS IoT – MS Azure : Driving Enterprise Transformation

Building on belief

Overview

- End to End Expertise in across all the layers on IoT ecosystem
- Right ecosystem of partners
- Comprehensive portfolio of IoT-related intellectual property and services
- Large Pool of associates working across the layers of IoT

Services

- IoT end to end Solution Delivery from edge to Applications
- Multi-Vendor IoT Platform SI delivery
  - PaaS & IaaS based solutions
- AI ,ML and Industrial Analytics
- Multiple Azure services leveraged to deliver business value to customers
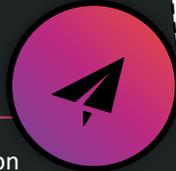
Bringing Life to Things™

IoT business framework to help you in unlocking exponential value

Physical Context

+

Digital Intelligence

Business Dimensions

Technical Construct

Business Solution

- Connected Products B2B
- Connected Health & B2C
- Industry 4.0
- Digital Thread/ Twin
- Connected Supply Chain
- TCS-MS Joint solutions– Clever Energy, IP2, DMP, Logistics Optimizer

Consulting & Advisory

- IoT Value Discovery
- Digital Maturity Assessment
- Roadmap & Implementation Consulting
- Platform Evaluation
- Technology Selection
- Reference Architecture

Value Driven Customer Engagement Approach

Building on belief

VALUE DISCOVERY	VALUE REALIZATION	VALUE MAXIMIZATION

Digital Strategy Definition	Define & Design	MVP and Pilot	Industrialization	Scale Out & Sustenance

Business Requirements	Capability Prioritization	Foundation Readiness	Product Ownership	Infrastructure Readiness	Site Readiness	Value Analysis
	Architecture Definition	Technology Evaluation	Organization Structure	Training Needs	Localization Needs	

PROVEN METHOD, TOOLS AND TEMPLATES

Industrial IoT Platform Reference Architecture

IoT Platform Evaluation

DevOps

Agile Methodology

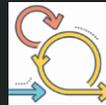IIOT Platform

Factory Model - Rollout
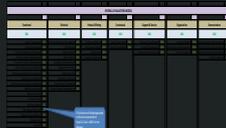
OTCyberSecure Framework

Value Analysis Framework (CBA)

Change Management Framework

tcs CleverEnergy™

tcs IP2™

tcs InTwin™

tcs DigiFleet™
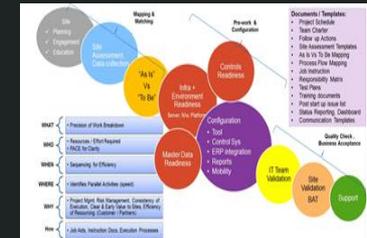
Digital Enterprise Assessment & Roadmap Creation

TCS Bringing Life to Things™ IoT Framework

TCS Bringing Life to Things™ helps enterprises respond to a physical context with digital intelligence to unlock exponential value, drive mass personalization, embrace risk and leverage the emerging ecosystem. The value driven approach and frameworks helps organizations to scale by assessing their current eco system and develop a future roadmap. Then embark in a journey of value realization and value maximization. Our tools and solutions accelerate each of these phases while aligning to the best-in-class framework guidelines to enable organizations to scale.

Maturity Assessment

Assess your organizations digital, functional maturity and the enterprise readiness to implement the digital roadmap

ROI

Use case identification to ensure quick ROI by creating a use case – business value matrix, future ready architecture and implementation roadmap.

Value driven

Enhance your ability to derive exponential value and accelerate your journey towards a transformation journey with with an extensible, modular framework

90%
Industry respondents feel IoT to be critical to overall success and many are looking for guidance to scale.[1]

US Manufacturing Major plans millions of savings

A US manufacturing major was looking to transform its legacy plants to a digital Manufacturing ecosystem. TCS utilized the value driven approach and frameworks to assess 7 manufacturing sites across 5 countries with 6 different product lines to create a roadmap that would generate $ 200 Million in value.

1 Microsoft 2020 IoT signals report

Reduce building energy use and CO2 emissions

TCS Clever Energy™

Award winning TCS Clever Energy™ solution managing more than 75+ Million Sq. ft globally is powered by IoT and cognitive intelligence facilitating organizations to optimize energy and reduce GHG (Green House Gases) emission and meet their financial and sustainability goals. In-built analytical models & Energy Digital Twin Setup enables organization to integrate disparate systems to take faster decision to become energy efficient and drive net zero emissions.

Carbon Neutrality

Work towards your sustainability goals with better insight and optimization of your energy usage and carbon emissions

ROI

Get a quick return on investment in less than a year with deployment in as little as 8 weeks and TCS global experience

Savings

Lower energy costs by 8 to 15 percent YoY through better energy management and decision support

Energy anomalies and fluctuating energy prices increase budget risk and impacts emission goals.

We have implemented this solution across our retail stores, warehouses, offices and malls and have started realizing the energy savings. This step goes a long way in meeting our Group's sustainability targets and expanding our clean energy goals, which in turn helps us become more cost-competitive and innovative as a business.

Group CFO, Middle East Retailer

Digitally transforming power plants

TCS IP2™

TCS IP2, powered with Azure IoT, is the first solution that combines AI, ML, IoT and Digital Twin technologies to operate and maintain thermal power plants, enhancing plant reliability, improving flexibility and cutting emissions while keeping operating costs low. The intelligent, scalable, modular digital solution deploys AI and ML-based Digital Twins as "Intelligent Operators" that provide real-time insights and actions for critical assets such as boilers, turbines, generators and auxiliary systems in partial and full-load operating conditions. The solution can analyze 1000s of parameters to optimally guide operation and maintenance of power plants.

Improving efficiency and performance along with lowering emissions was a key priority for power plants

Improve performance &efficiency

IP2 suggests optimal operating recommendations for improving efficiency while also reducing emissions.
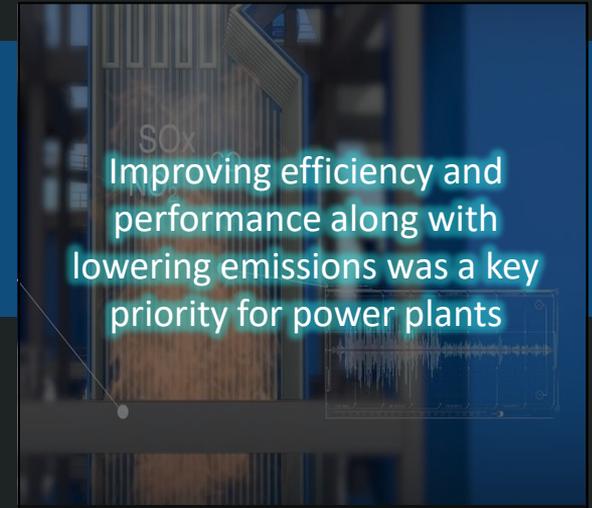
Reduce O&M costs

IP2 helps lower costs by using a predictive maintenance regiment and keeping fuel and chemical consumption low.

Enhance flexibility & availability

IP2 reduces unplanned outages, improves availability and facilitates flexible operation in varying load conditions.

Major Electric Power company saves millions
A major electric power company in Japan faced deregulation and competition that threatened revenue. The company wanted to increase operational efficiency in thermal power plants. TCS implemented IP2 solution that helped reduce carbon monoxide, nitrogen oxide, sulfur oxides and other harmful emissions by 10 percent. The utility also now minimizes coal and auxiliary power consumption, saving $1-2M U.S. savings annually.

TCS.IoT@tcs.com | https://www.tcs.com/ip2-digital-power-plants-maintenance-efficiency

Optimize shipping and logistics for improved delivery

TCS Logistics Optimizer

TCS Logistics Optimizer helps you optimize your shipping and logistics to increase utilization, optimize routes, and improve delivery service to customers by up to 17%. Our AI model looks at orders, shipments, packages, trucks, drivers, and road data and provides real-time optimization recommendations and simulation support to achieve the target outcomes.

Faster delivery
Deliver the right products to the right customers in less time and with more confidence - up to 17% increase in on time delivery

Better utilization
Optimize your shipments, trucks, drivers, and routes to Increase the efficiency of your operation - up to 23% increase in resource utilization

Lower costs
Lower your operating costs and losses with real-time recommendations and product quality sensors – up to 15% decrease in cost

93%
Industry respondents said improving efficiency and productivity was a key priority

On the enhancements side, this year we started a super interesting collaboration project around Logistics Optimization. Since the initial concept it's been a long trip full of learning. Personally, these months working with TCS team have enriched my know-how and have challenged my experience in the matter, looking for new boundaries.

Logistics Solution Manager, Large Cement Manufactxurer

TCS.IoT@tcs.com | https://www.tcs.com/tcs-digifleet

tcs | TATA CONSULTANCY SERVICES

Optimize unit cost in discrete and batch manufacturing

TCS Digital Manufacturing

TCS Digital Manufacturing solution helps you optimize production and reduce unit costs by bringing together manufacturing performance management, asset and energy management, and supply chain analysis. Our modular data-centric solution uses a value-based approach that allows you to start with one use case and scale up to end-to-end optimization.

Profit
Reduce your overall cost per unit by optimizing quality, asset performance, energy usage and supply chain in one place

Visibility
Get a holistic view of your manufacturing losses across your machines, raw materials, and utilities

Flexibility
Enhance your ability to analyze and optimize your manufacturing operations with an extensible, modular platform

Manufacturers can't easily get a holistic view of performance and unit cost impact

At Titan Engineering and Automation Ltd (TEAL), we have been piloting the digital solutions in a section of our plant. We are seeing the early signs of smartness, where defect and unplanned downtime are reducing considerably. Its real time visibility into our operations has also given us actionable insights, enhancing productivity.

Mr. R. Vivekanandah, CEO/Director, TEAL

TCS.IoT@tcs.com | https://www.tcs.com/manufacturing

tcs | TATA CONSULTANCY SERVICES   ■■ Microsoft

What next?

→ Connect with the team at TCS:
TCS.IoT@tcs.com

→ Learn more about TCS IoT solutions at:
https://www.tcs.com/internet-of-things

Thank You