TATA CONSULTANCY SERVICES

Experience certainty.   IT Services
Business Solutions
Outsourcing

Smart Grid Solutions
Energy, Resources and Utilities

As the world faces incessant demands of a Green renaissance, ubiquitous electricity has also come increasingly under the 'green microscope', leading to a rapid drive for a 'Smarter' Utility with increased operational excellence, better response to energy demands, an Intelligent grid armed with right information to reduce outages and to pre-empt demand loads and a conscious customer ready to change its energy consumption behavior.

We, at Tata Consultancy Services, understand this demand for building a new electricity landscape and offer Smart Grid solutions, supported by our unique accelerators and proven methodologies, synergizing across the various building blocks of a Smart Grid, for a sustainable future.
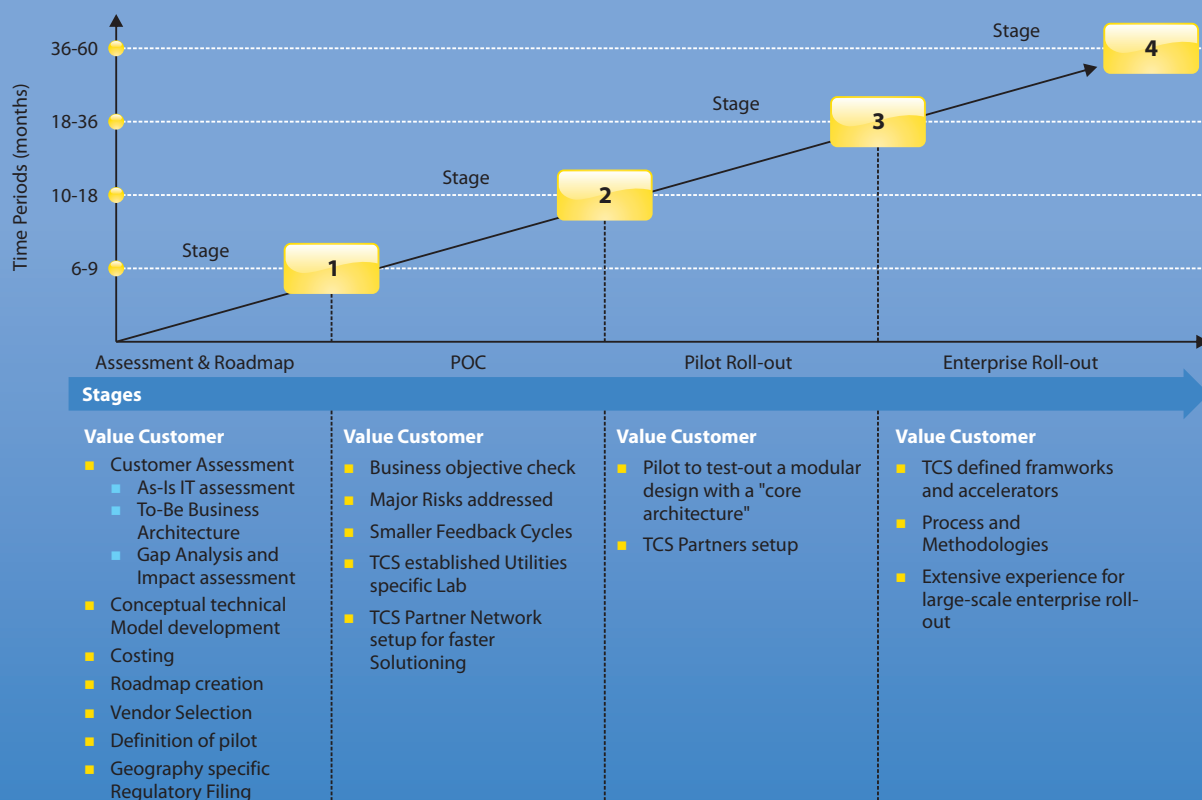
Overview

As the utility faces challenges of volatile energy demands and specific customer needs for energy services, you need a framework that will seamlessly integrate disparate platforms and applications like billing and settlement, CRM, analytics, Distribution Management System etc, comply with the regulatory framework and also enhance customer experience.

The key to a successful smart grid deployment lies in creating the right roadmap, which takes into consideration the complexity of functionalities and the business implications of such a large enterprise initiative.

Our Smart Grid Solutions work across the value chain of Smart landscape, from assessment to deployment of a smart grid. We help to devise a smart grid strategy by assessing existing setup, performing gap analysis and creating roadmap for a successful pilot to enterprise wide roll-outs.

These are backed by Proof-of-Concepts (PoC) that measure the solution efficiency and the actual value of the benefits, the cost involved and the distribution of cost and benefits of smart metering for the Utility concerned.
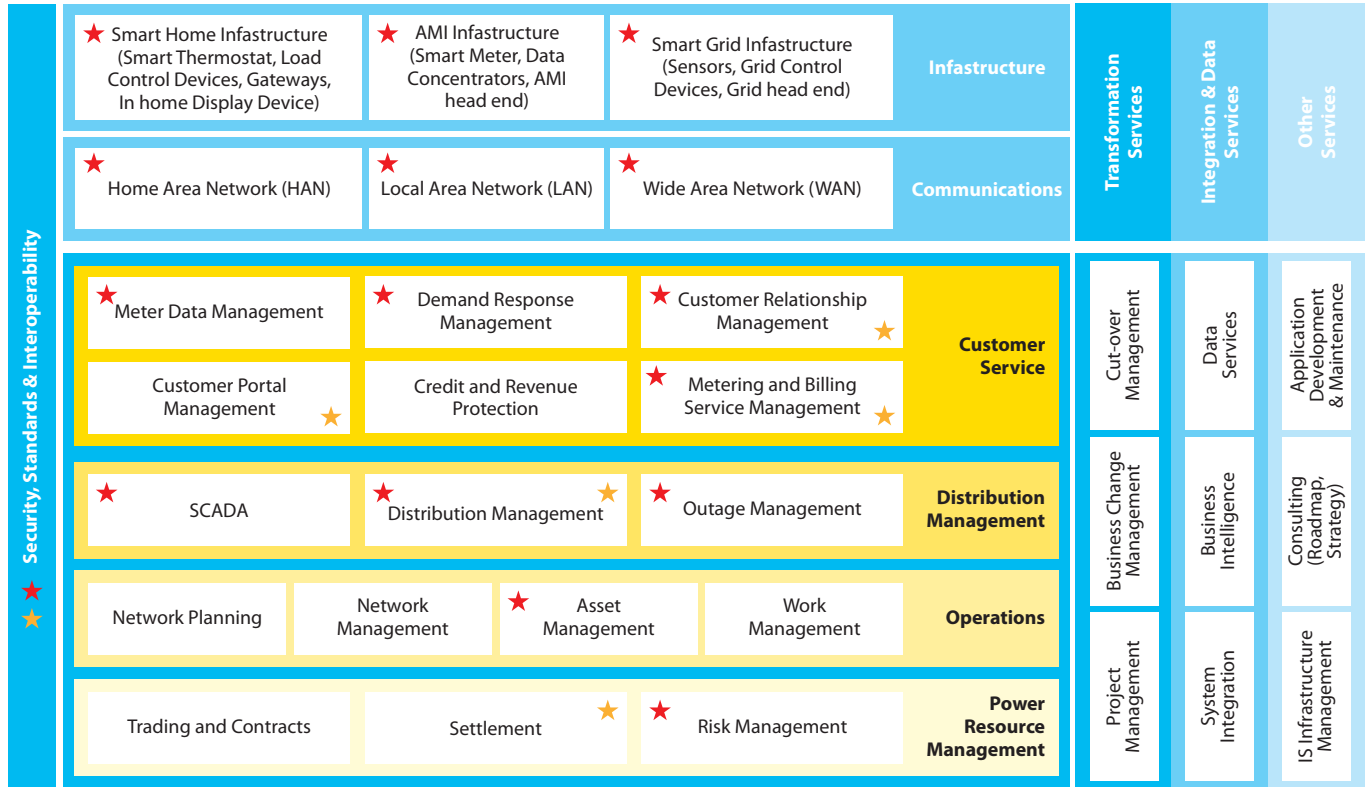

	Assessment & Roadmap	POC	Pilot Roll-out	Enterprise Roll-out
Stages				
	Value Customer	**Value Customer**	**Value Customer**	**Value Customer**

	■ Customer Assessment
	   ■ As-Is IT assessment
	   ■ To-Be Business Architecture
	   ■ Gap Analysis and Impact assessment
	■ Conceptual technical Model development
	■ Costing
	■ Roadmap creation
	■ Vendor Selection
	■ Definition of pilot
	■ Geography specific Regulatory Filing
		■ Business objective check
		■ Major Risks addressed
		■ Smaller Feedback Cycles
		■ TCS established Utilities specific Lab
		■ TCS Partner Network setup for faster Solutioning
			■ Pilot to test-out a modular design with a "core architecture"
			■ TCS Partners setup
				■ TCS defined framworks and accelerators
				■ Process and Methodologies
				■ Extensive experience for large-scale enterprise roll-out

TCS' View of "Smart Lifecycle"

A smart grid will be able to address industry needs of demand response management and prediction of electricity flows which in turn will consolidate maintenance efforts more easily. Smart metering is one of the building blocks in this smart grid blueprint. TCS enables you to view a disaggregated yet functional view of the Smart blueprint.

The strength of our solution lies in the flexibility to opt between a complete implementation and individual component solution from our Smart Framework, to address your specific needs.

While integrating with your existing applications, our consultants also help you choose the best suited Advanced Metering Infrastructure (AMI) for your specific requirements and help in designing the end-to-end deployment map from inception to enterprise roll-outs.

Security, Standards & Interoperability	Infrastructure				Transformation Services	Integration & Data Services	Other Services
	★ Smart Home Infrastucture (Smart Thermostat, Load Control Devices, Gateways, In home Display Device)	★ AMI Infastructure (Smart Meter, Data Concentrators, AMI head end)	★ Smart Grid Infrastructure (Sensors, Grid Control Devices, Grid head end)	Infastructure			
	★ Home Area Network (HAN)	★ Local Area Network (LAN)	★ Wide Area Network (WAN)	Communications			
	★ Meter Data Management	★ Demand Response Management	★ Customer Relationship Management ★	Customer Service	Cut-over Management	Data Services	Application Development & Maintenance
	Customer Portal Management ★	Credit and Revenue Protection	★ Metering and Billing Service Management ★				
	★ SCADA	★ Distribution Management ★	★ Outage Management	Distribution Management	Business Change Management	Business Intelligence	Consulting (Roadmap, Strategy)
	Network Planning	Network Management	★ Asset Management	Work Management	Operations	Project Management	System Integration	IS Infrastructure Management
	Trading and Contracts	Settlement ★	★ Risk Management	Power Resource Management			

Smart Playing Field for TCS

★ Highly Impacted
★ Solutions on Products from Alliances

Our Accelerators

Our solutions are complemented by our unique accelerators for smart metering, distribution automation, transmission automation, and distributed generation integration. These accelerators have been developed through our expertise at our Center of Excellence (CoE) for Smart Grid as well as our Co-Innovation Network (COIN)™. They help reduce deployment risk and ensure rapid Smart Grid implementation. The accelerators include:

Smart Portals: The Portal is built to demonstrate some of key customer services & self services portals around smart such as consumption analytics, smart product choice, registration & profile management , billing & payment and customer complaint to mention a few.

ESB Prototype: A prototype integrating different applications such as customer portals, billing, MDMS, OMS, work management and taking care of model driven integration, synchronous & asynchronous flow, business process based integration, scheduled based integration ,to mention a few.

Set-top Box: Energy Information Gateway – Set top box being prototyped as energy information gateway and enables HAN integration, communicates to meter, provides in premise energy management & utility portals

CEP driven Real Time Intelligence: Use of complex event processing on data from PMU, DMS, AMI and other events to derive Real Time Intelligence like classification and location of faults.

SMART Framework: A framework to accelerate the integration in smart domain. It can act as a stand in meter data management system or can expose meter data based services to backend applications like billing, work management portals.

MDM Prototype: Processes of Master data set up, meter data reading, meter data validation, editing, estimation and aggregations as billing determinant using different MDMS

Complex Billing: Complex billing prototype around smart products involving critical peak pricing with interruptible components.

Smart Analysis Framework: An analysis framework for business & technical architecture definition. The same can be used to define the business process around smart and create roadmap for implementation.

Benefits of TCS' Smart Grid Solutions

While helping you through the entire Smart Grid journey from inception till maturity, we bring you benefits such as:

- **Increased agility**. Our solution accelerators provide a base to ensure faster implementation, thereby improving your ability to respond to business changes.

- **Better technology.** Our solutions are based on new technologies that help you improve application performance, management, and integration capabilities, ensuring enterprise-wide compatibility.

- **Scalability.** The Smart Grid application can be deployed in pilot-size and scaled up to meet enterprise requirements.

- **Reduced cost.** Giving you the flexibility to choose application components to suit your requirements, we help you reduce costs in purchase of the offering and ensure you get the best value for money.

- **Best practices.** Our solutions incorporate industry best practices in terms of process implementation, to give you the best-in-class solutions.

Why TCS

At TCS, we make conscious investments in people, infrastructure, and alliances and harness a strong vision to address the smart grid of the future. By partnering with us, you gain from our:

- **Smart CoE & Infrastructure:** The Utilities CoE is a dynamic think-tank of consultants from technology practices, industry domains, program management, strategy and change consulting and the TATA Group. The Utility CoE is focused on designing & developing new industry solution in various utility domains including Smart Grid. Within the Utility CoE, there is a 'dedicated group' for Smart Grid that actively engages in building prototypes, developing methodologies and accelerators in SMart space along with leveraging the knowledge base & best practices gained across projects. This dedicated group also facilitates alliances with key leading players in the Smart field. The "Smart Grid" state of art innovation lab facilities at Peterborough and Kolkata are also in constant touch with industry and analysts for continuous knowledge sharing and building new prototypes.

- **Smart Experience:** We have a strong end to end customer base across the globe including leading utility clients at US, UK, Australia, and India. The gamut of our experience ranges from Assessment & Roadmap, POC, Pilot Roll out and Enterprise Roll out.

- **Smart Processes:** Our solution framework is technology agnostic. Each of our project accelerators is unique on its own & leverages on technology best suited for scalability and performance. The use of SOA patterns and loose coupling makes it easy to integrate to Industry Solutions like SAP, Oracle at the same time legacy applications. Our Smart Process also addresses the 3 key dimensions of Smart Execution: Customer Engagements, Gradual Integrations & ROI monitoring.

- **Smart Alliances:** Our strategic alliances with key players in the Smart space give us access to packaged solutions with creativity and flexibility of bespoken modules.

About Tata Consultancy Services (TCS)

Tata Consultancy Services is an IT services, business solutions and outsourcing organization that delivers real results to global businesses, ensuring a level of certainty no other firm can match. TCS offers a consulting-led, integrated portfolio of IT and IT-enabled services 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 over 143,000 of the world's best trained IT consultants in 42 countries. The company generated consolidated revenues of US $6 billion for fiscal year ended 31 March 2009 and is listed on the National Stock Exchange and Bombay Stock Exchange in India. For more information, visit us at www.tcs.com.

Contact

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