CASE STUDY · IT PARK / COMMERCIAL

7 Years of Energy & Air Quality Intelligence Across 11 TCS Campuses

How EnSmart's SmartNova Platform has collected Energy, BTU, CO■ and IAQ data from multiple BMS vendors across India — and delivered it in TCS's required database format for enterprise-wide energy analysis and air quality improvement since 2018.

Client: Tata Consultancy Services (TCS) · Platform: SmartNova · Deployments: 11 Sites · Partnership: 2018–2026 (Ongoing)

At a Glance

11	7+	4+	1	2018–’
TCS Sites Deployed	Years of Partnership	BMS Vendor Protocols	TCS Database Format Output	Ongoing Engage

The Challenge

TCS operates large IT park campuses across India, each with its own Building Management System supplied by different vendors. Each campus ran its own data silo. There was no single view of energy consumption, BTU distribution, indoor air quality, or CO■ levels — and no standardised way to feed that data into TCS's central systems for analysis.

TCS required a custom-built solution that could:

- Connect to multiple BMS vendors’ controllers using BACnet, Modbus, and proprietary protocols
- Integrate Energy Meters, BTU Meters, CO■ sensors, and full IAQ sensor suites at each campus
- Collect, normalise, and push data into TCS’s centralised database in TCS’s required format
- Support TCS’s energy analysis and air quality improvement programmes at enterprise scale
- Scale to new campuses without re-engineering the integration from scratch each time

> *"The data existed at every campus. The challenge was collecting it from heterogeneous BMS systems and delivering it in exactly the format TCS needed for their energy and air quality intelligence programmes."*

The Solution — SmartNova Platform

EnSmart deployed its SmartNova Platform as a custom-built, multi-site data collection and delivery system. Starting with TCS Magnum in 2018/19, SmartNova was designed from the ground up to connect to any BMS vendor's controllers, collect Energy, BTU, CO■ and IAQ data in real time, and push that data into TCS's centralised database in TCS's own required format — ready for their energy analysis and air quality teams.

The key design principle: **no disruption to existing BMS, no replacement of infrastructure, and output always in exactly the format TCS specifies.** As TCS's database format requirements evolved, SmartNova adapted. As new campuses came online, the same framework was applied — faster each time.

Layer	What SmartNova Does	Technologies Used
Field Devices	Reads Energy Meters, BTU Meters, CO■ sensors, IAQ sensors at each campus	Modbus RTU/TCP, M-Bus, Pulse
BMS Controllers	Integrates with existing BMS from multiple vendors without replacement	BACnet IP/MSTP, Modbus, LonWorks
Data Normalisation	Converts vendor-specific data into a clean, timestamped, tagged dataset	SmartNova Edge Engine
Database Delivery	Pushes data into TCS's centralised database in TCS's required format — ready for energy analysis and IAQ reporting	TCS DB Schema, REST API, Scheduled Push
Ongoing Sync	Continuous, automated data delivery. Format updated as TCS requirements evolve.	SmartNova Sync Engine

What Data Is Collected at Every Campus

■ **Energy Meters**	kWh consumption per floor, per feeder, per building. Real-time and historical trending. Peak demand alerts.
■ **BTU Meters**	Thermal energy consumed by each chiller zone. Delta-T monitoring. Chiller plant efficiency tracking.
■ **CO■ Sensors**	Zone-level CO■ concentration. Occupancy correlation. Fresh air damper control validation.
■ **IAQ Sensors**	Temperature, humidity, PM2.5, TVOC, CO■ combined. WELL / LEED compliance data. Tenant health reporting.

Site Rollout — TCS Campus by Campus

EnSmart began with TCS Magnum in September 2024 and has since expanded to 11 campuses across India. Each new site is onboarded using the SmartNova standard deployment framework, reducing integration time with every successive campus.

Campus	Location	Go-Live	Status
TCS Magnum	Bengaluru	2018 / 19	**Live — Origin**
TCS Lucerna	Bengaluru	Oct 2024	**Live**
TCS Indore	Indore	Oct 2024	**Live**
TCS KPR	Coimbatore	Nov 2024	**Live**
TCS Hiracud	Odisha	Dec 2024	**Live**
TCS IITKRGPR	Kharagpur	Mar 2025	**Live**
TCS Noida / Yamuna	Noida	Jul 2025	**Live**
TCS OZONE	Bengaluru	Jun 2025	**Live**
TCS PATNA / Ganga	Patna	Nov 2025	**Live**
TCS Bhubaneswar	Bhubaneswar	2025	**Live**
TCS Yeshwanthpur	Bengaluru	May 2026	**★ Latest**

Started at TCS Magnum in 2018/19. Now live at TCS Yeshwanthpur in 2026. Seven years. Eleven campuses. One consistent data delivery framework — always in TCS's required format, always without replacing existing BMS.

How SmartNova Works — Technical Overview

STEP 01
Edge Collection

SmartNova Edge Nodes installed at each campus connect to existing BMS controllers and field devices via BACnet, Modbus RTU/TCP, and M-Bus. No replacement of existing infrastructure. No disruption to live BMS operation.

STEP 02
Protocol Translation

The SmartNova engine translates vendor-specific data structures — whether from Schneider, Honeywell, Siemens, or any other BMS — into a clean, timestamped, campus-tagged dataset. Every data point normalised identically across all 11 sites.

STEP 03
Format Mapping to TCS Schema

Normalised data is mapped to TCS's required database format. Field names, units, data types, timestamps, and campus identifiers all conform exactly to TCS's specification — so TCS's energy and IAQ analysis tools consume the data without any transformation on their side.

STEP 04
Secure Database Delivery

Data is pushed securely into TCS's centralised database on schedule. Energy consumption, BTU values, CO■ concentrations, and IAQ parameters arrive tagged by campus, floor, zone, and device — ready for analysis.

STEP 05
Continuous Sync and Adaptation

SmartNova runs continuously — collecting and delivering data 24 hours a day. When TCS updates their database format requirements, SmartNova's mapping layer is updated accordingly. The campuses and BMS systems are unaffected.

Results and Value Delivered

Area	Before SmartNova	After SmartNova
Energy Data	Siloed per campus BMS. No standardised output.	Continuous delivery to TCS database in required format.
BTU Monitoring	Manual logs or no campus-level data.	Automated BTU metering. Data pushed to TCS automatically.
IAQ & CO■	Spot checks only. No structured data collection.	Continuous per-zone data. Delivered to TCS IAQ programme.
Multi-vendor BMS	Each vendor's system completely isolated.	All systems feeding one normalised delivery pipeline.
Data Format	Each BMS had its own proprietary format.	All data mapped and delivered in TCS's exact required schema.
Scalability	Each new campus = new integration project from scratch.	Standard SmartNova onboarding. 10 more campuses in 7 years.

TCS Yeshwanthpur (May 2026) marks the 11th SmartNova deployment for TCS. What began at TCS Magnum in 2018/19 as a single-campus integration has become a 7-year enterprise data partnership — collecting energy and air quality data from every major TCS campus and delivering it in exactly the format TCS needs, every single day.