Revamped Distribution Sector Scheme: The Scalability Hurdle
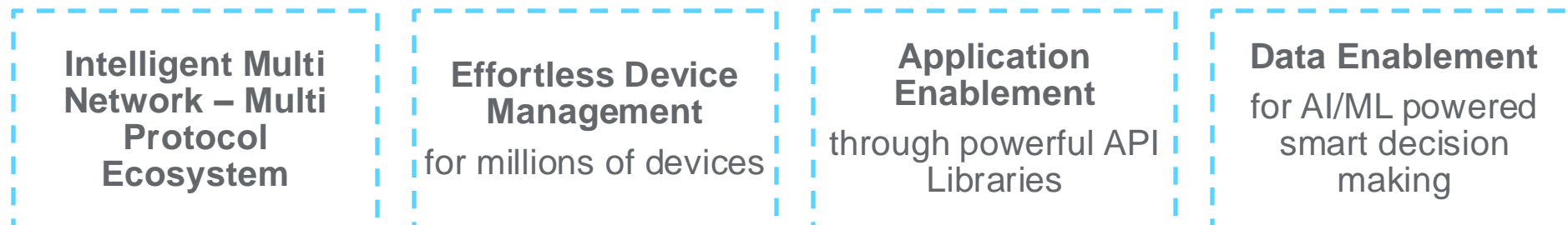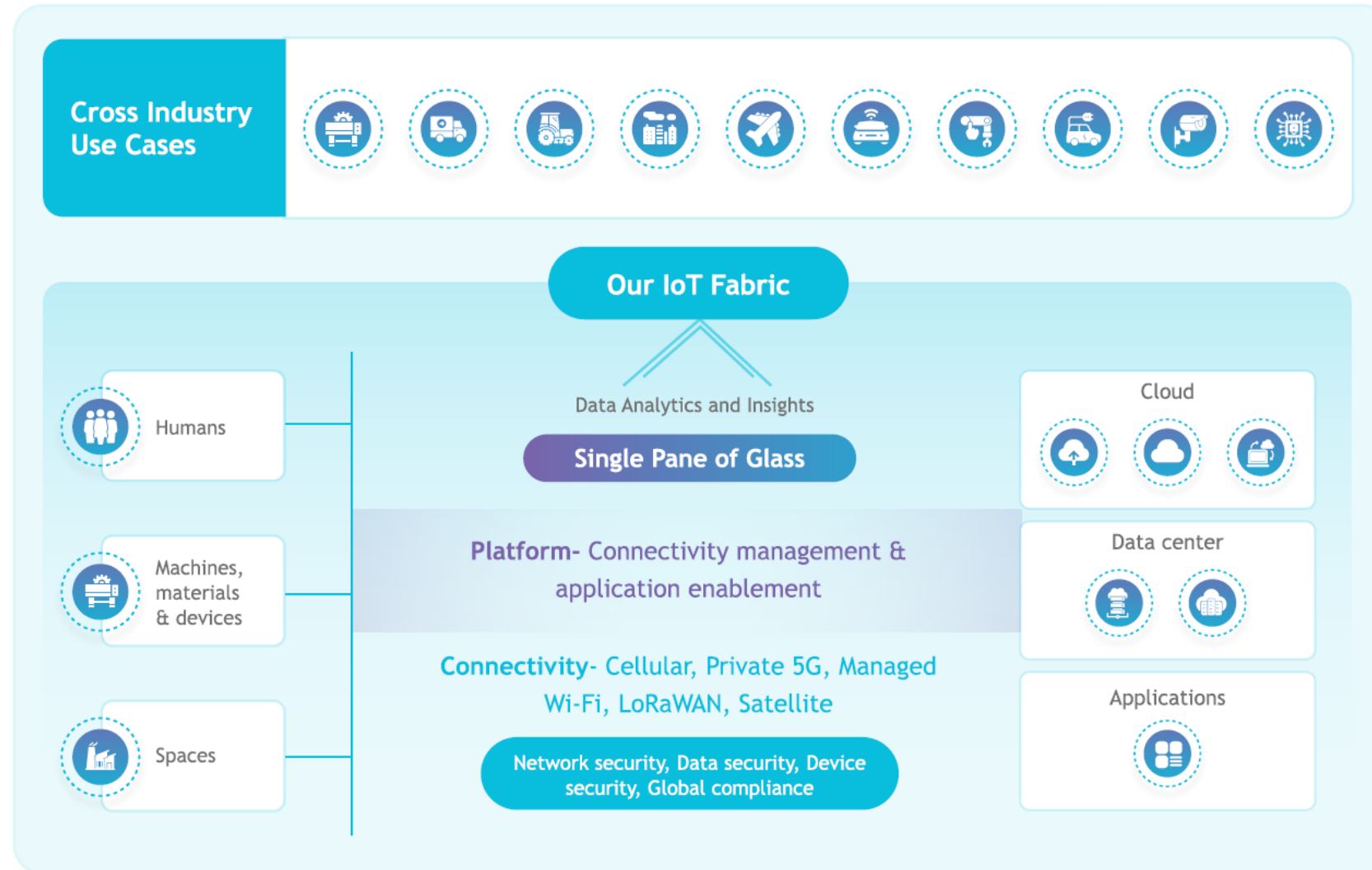
The Smart Metering Program under RDSS was ambitious and well-funded, however, several structural, operational, and financial barriers have hampered its success and scalability.

Technical POV	Integration Challenges	Interoperability Challenges	Connectivity & Network Failures	Cybersecurity Risks
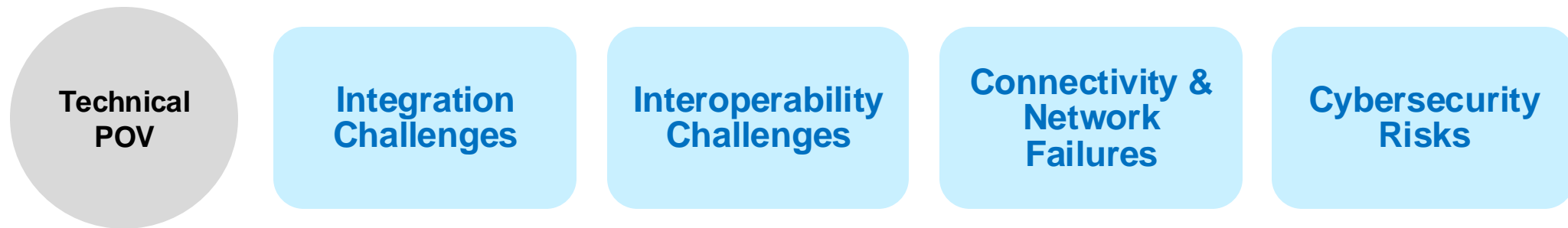
Tata Communications IoT Fabric powers digital transformation with a unified orchestration layer, providing a Single Pane of Glass for seamless management of systems and networks enabling:

Intelligent Multi Network – Multi Protocol Ecosystem	Effortless Device Management for millions of devices	Application Enablement through powerful API Libraries	Data Enablement for AI/ML powered smart decision making

Tata Communication - IoT Fabric

Tata Communications Smart Utilities: Energy, Gas & Water Meters

ENERGY

Reduces network outages and quickens response through meter and grid monitoring and analytics.

WATER

Beyond automated reading, improves water network management and reduces the non-revenue water with leak detection.

GAS

Helps utilities in the LNG and LPG industry improve their billing accuracy. Remotely measures gas flow rates and pressure in gas pipe networks and risk control in case of alert.

IOT ENABLED SMART METERING

End-to-end IoT enabled smart metering to optimize resource consumption & revenue recognition through automated data gathering, remote monitoring of usage and control of meters to mitigate losses and thefts.

An IoT Platform for seamless integration & enhanced analytical capability to measure and monitor resource consumption that empowers the customer to

AUTOMATE

CONTROL

ANALYSE

Consumption Patterns

- ✓ Analyze the Peak hours, Zones & consumption patterns

- ✓ Draw further insights on demand planning, load management, etc.

Usage & Losses

- ✓ Detect theft and tampering

- ✓ Detect leakages

- ✓ Remotely disconnect supply

Spends & Savings

- ✓ Two-fold audit at supply and consumer end

- ✓ Save O&M Costs, prevents revenue loss due to timely alerts etc.

Smart Utilities – Safety, Security, Sustainability

Tata Communications Smart Utilities help in conserving energy, saving fuel; thereby enabling customers to avoid GHG emissions and costs associated with energy and fuel.

SAFETY & SECURITY

Tamper & Thefts
Real time alerts/notifications of meter tampers or resource thefts to take immediate corrective Action

Leakages
Near real time leak detection and alerts to mitigate AT&C, NRW

SUSTAINABILITY

Energy consumption avoidance
Real-time data recording and analytics helps to change consumption behavior

Reduced Carbon Footprint
Integration with Renewables, early detection of leakages and predictive maintenance allows for reduced carbon footprint

*In FY24, Tata Communications enabled its customers by delivering meaningful sustainable impact**

Scope 2 avoidance for GHG with overall Energy Saved for the customers	*Residential Smart Gas Meter, results in Gas savings equivalent to*	*Residential Smart Water Meter, results in water savings equivalent to*
1942 MwH	**41,178m^3**	**78,752KL**

*Internal Audit

Key Benefits Of LoRaWAN® For Utilities

TECHNOLOGY BENEFIT	CONNECTIVITY UPSIDE	VALUE FOR UTILITIES	ADD VALUE/ USE CASES
Open Network Protocol	Flexible Network Models Low cost infrastructure	Public, Private or hybrid networks	High reading rate and scalable deployment
LoRaWAN Certified^{CM} Program for End-Devices Liaisons with standards	Ease to connect Reliability	End device interoperability	Metering standards supported (DLMS, OMS)
Low Power, Deep indoor & long range	Adaptative Data Rate	Optimized battery lifetime configured by network	Good fit for smart water and gas metering
New datarates	Robust to interferences Higher density	Higly scalable	Same network for multi-metering

LoRaWAN®

Connecting a Smarter Planet

LoRa Alliance®

Smart Energy Meters: Optimize Resource Consumption And Revenue Recognition For India's Largest Private Townships

Business Challenges

- **Manual Data Collection:** High dependency on physical meter reading, causing inefficiencies.
- **Inaccessible Meters:** Door-lock cases led to billing approximations and high customer complaints.
- **Operational Burden:** Increased time and costs in complaint resolution and demand planning.

Our Solution
IoT-Based Smart Metering with LoRaWAN®

- **Automated Remote Meter Reading:** Eliminated manual interventions and inaccuracies.
- **Real-Time Data & Alerts:** Enabled proactive monitoring and decision-making.
- **Seamless Integration:** Reduced maintenance costs with cost-effective network deployment.

100% Elimination of door-lock issues.

40-50% Reduction in man-hours spent on complaint resolution.

25% Faster outage rectification, ensuring seamless service continuity.

Smart Water Meters: Efficient Water Management, Cost Savings, And Sustainability For Municipalities & Private Utilities

Business Challenges

- **High Non-Revenue Water (NRW):** Leaks and inefficiencies led to significant water loss.
- **Manual Data Collection:** Dependence on physical meter reading increased operational costs.
- **Lack of Consumption Insights:** Reliance on approximations made demand planning difficult.
- **Unmonitored Usage:** No real-time tracking led to water wastage and revenue loss.

Our Solution
LoRaWAN® Based Smart Water Metering

- **Automated Meter Reading:** Eliminates manual effort, improving efficiency.
- **Real-Time Monitoring & Alerts:** Detects leaks, tampering, and abnormal consumption.
- **Data-Driven Analytics:** Enables demand forecasting and optimized resource allocation.
- **Seamless Integration:** Works with third-party apps & ERP systems for smooth operations..

Reduced Operational Costs by eliminating manual interventions.

Real-Time Consumption Tracking for accurate billing and revenue recognition.

Improved Water Conservation by enhancing visibility and accountability.

Leak Detection & Prevention to reduce non-revenue water losses.

Optimized Demand Planning with data-driven decision-making.

Simple. Affordable. Transformative.

Business Challenges

- **Manual Data Collection:** Heavy reliance on physical meter readings led to inefficiencies.
- **Billing & Revenue Issues:** Approximate billing, delayed invoicing, and revenue loss in post-paid systems.
- **Safety Concerns:** Difficulty in detecting gas leaks and tampering risks.
- **Meter Inaccessibility:** Door-lock cases prevented accurate consumption tracking

Our Solution
LoRaWAN®-Based Smart Gas Metering

- **Postpaid & Prepaid Systems:** Seamless deployment with minimal maintenance.
- **Real-Time Monitoring:** Remote access to meters for consumption tracking and anomaly detection.
- **Automated Alerts:** Instant notifications for leaks, tampers, and battery health.
- **Advanced Analytics:** Dashboard-driven insights for demand planning and trend analysis.

Reduced Operational Costs with automated processes.

Enhanced Revenue Recognition via postpaid metering accuracy.

Improved Cash Cycles through prepaid metering automation.

100% Elimination of door-lock and reading inaccuracy issues.

Timely Leak & Tamper Detection ensuring safety and regulatory compliance.

Veolia Deploy Over 3 Million Smart Water Sensors In France

- Over 3 million LoRa®-based water meters installed for connecting to Orange's public LoRaWAN® network

- Additional water sensors are scheduled for deployment to transition from pure metering to environmental services

- These solutions unify all water sensors in a multiservice connectivity network to support the digital transformation of water utilities

- 4 million m3 of clean water saved per year

The LoRa® Mark is a trademark of Semtech Corporation. LoRaWAN® is a mark used under license from the LoRa Alliance.

Reduced water loss, optimized operations, increased customer satisfaction

Connecting a Smarter Planet

SMART GAS METERING WITH DLMS IN ITALY

- DLMS is required in Italy by regulation of CIG

- Facing obligation to connect all meters and coverage issues with NB-IoT in Italy, for its new generation of smart gas meters Nimbus, **Italgas** looked for dual connectivity to ensure all meters can be connected.

- Itagas has chosen LoRaWAN because of the open standard and support of DLMS profile, and because of LoRaWAN Relay availability.

- After successful pilot of 30K with SCHC solution of **ACTILITY**, Italgas will start in H2 2025 a massive rollout of 8 million new smart gas meters in Italy.

https://www.youtube.com/watch?v=oXSXxtxzR9I

Utility benefits from a smart metering solution featuring DLMS over LoRaWAN® and ready for scaling

LoRaWAN

Connecting a Smarter Planet

LoRa Alliance

ORIONM2M Deploys LoRaWAN® For Retrofit Of Multiple Smart Meters In Kazaksthan

- Orion is a fully integrated developer and manufacturer of End2End IoT solutions based on LoRaWAN® technology

- Smart reading solution deployed on existing water, electricity, gas and heat meters by OrionM2M

- Already connected on same network and platform: 10,000 water meters, 1,000 electricity meters, 100 gas meters, 100 heat meters and 700 electronic volume converters

- Huge potential market of retrofit : 50 M

Benefit: Confirmed LoRaWAN as choice of connectivity for retrofit projects with multiple different meters (water/gas/electricity/heating).