

SMART METERING SOFTWARE SUITE

Single Suite Software for Smart Metering

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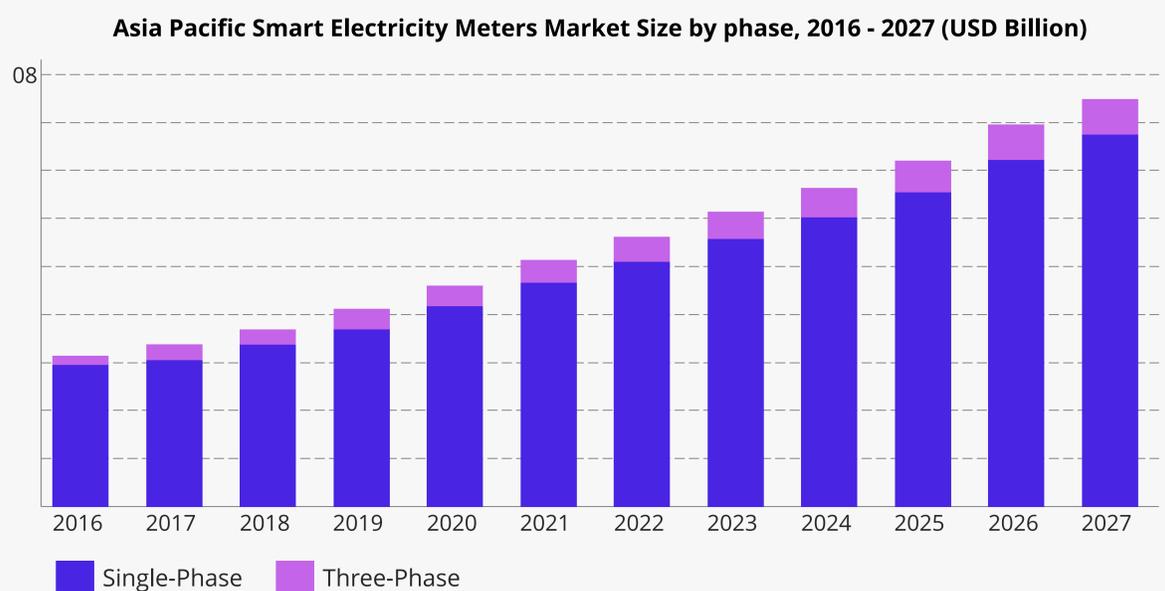
THE PROBLEM

Due to Climate Change, weather patterns have massively disrupted nature bringing imbalance and innumerable threats to human beings. High risks issues like increased water shortage, carbon-emissions, unstable electric supply to grids along with a high demand of energy generation require governments, metering infrastructure agencies, and stakeholders to deploy an intelligent, integrated and a cloud-based solution for monitoring & responding to its adversaries.

The global smart electricity meters market size was valued at USD 10.0 billion in 2019 and is anticipated to register a CAGR of 7.8% from 2020 to 2027.

Multiple smart metering schemes are being rolled out by governments in the UK, US & other regions. Several initiatives are supporting the installation of these devices, that is expected to accelerate adoption of sustainable solutions.

Source: Grand View Research, 2022



THE OUTSET

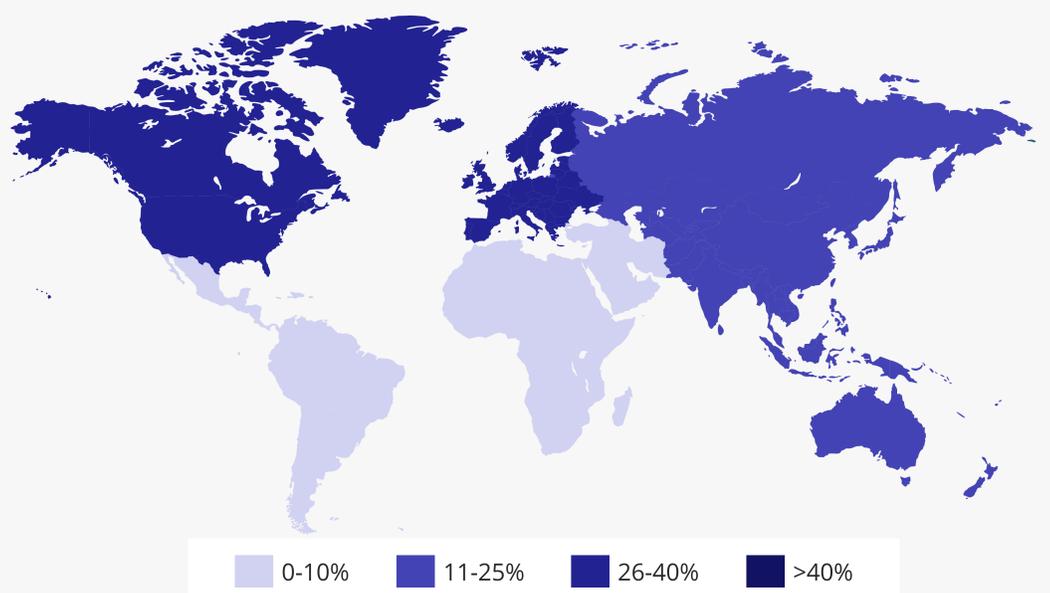
With the Decarbonization, Digitization, and Decentralization, utilities sector can transition into smart infrastructure that integrate data from various touch-points and handle the end-to-end consumer services.

With installation of smart meters, it is easy to determine the demand of the consumer and hence optimise the supply accordingly to reduce carbon emission. Installing and adopting smart metering technologies will enable utilities and infrastructures companies to invest and transition into sustainable and renewable solutions.

World Map for Smart Metering Adoption

The map shows Global Smart Meter Penetration by region. The North American Market along with European Union Nations have observed the highest penetration rate of Smart Metering adoption. At present, APAC market has a high growth potential with improved rate of adoption. Cities with maximum installations of smart meters have lowered their energy consumption costs as opposed to cities with traditional standalone analog-based systems.

Source: IoT Analytics Research 2022



Global Smart Meter Penetration by region 2019

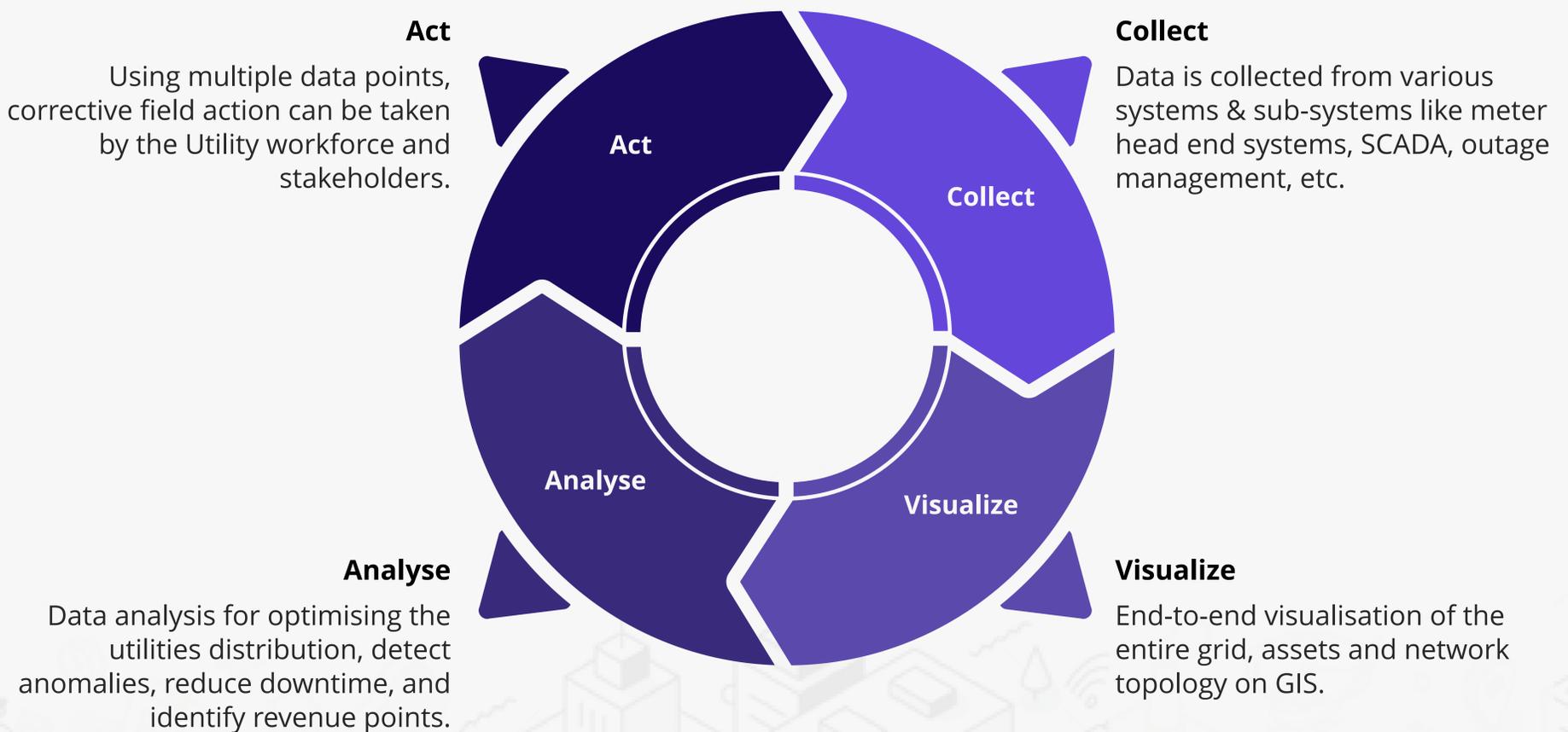
OUR SOLUTION

Trinity offers a holistic and a specialized approach to help Utilities and Cities achieve their Carbon Emission goals and Improve consumer's experience and revenue through its **Smart Metering Software Suite**.

Trinity's Smart Metering Software Suite is an advanced solution that integrates all the agencies and departments involved to deliver Water, Electricity and Gas services to the Consumer.

Trinity's digital platform for Utilities serves as a foundation for advanced metering infrastructure, with built-in Meter Data Management (MDM) capabilities. The platform also enables to build an Integrated Command and Control Centre that integrates with siloed systems to provide an end-to-end view to the Operator. The platform will help to collect data from various systems, Visualize and Analyze the data and , Act on the alarms and request.

Monitoring Lifecycle for Smart Metering Solutions



SOLUTION STACK AND KEY OUTCOMES

Three Layers of Smartness

Persona

 Utility Operator

 City Manager

 Workforce

 Consumer/Citizen

Applications

Utility Operation Center

trinity**ICCC**
Integrated Control & Control Center Platform

AI & BI Applications

trinity**ANALYST**
Analytics Platform

Workforce Management

trinity**MOBILE**
Mobile Workforce Management System

Consumer Information System

trinity**ENGAGE**
Consumer Engagement System

Platform

IoT & AI based Digital Platform

Sub System Integration

Map Services

Metering Head End Systems

trinityIoT - Meter Data Management Middleware



Meter Data collection, processing and analyzing for energy consumption and billing



Managing meter data quality through Validation and Estimation business rules



An Omni channel system for seamlessly connect consumers to avail services digitally, analyze & engage with the data from systems



Empower the workforce and other agencies with real-time insights to respond faster



Utilizing AI & ML capabilities like predictive maintenance, theft & leakage detection, for improving product life and revenue for utilities.



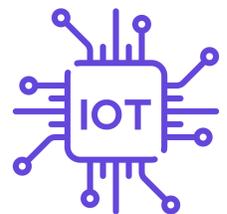
Meeting clean energy & decarbonisation goals with exceptional service to customers



CORE PRODUCTS

trinityIoT*TOPS* IoT Provisioning & Administration Tool

The **IoT Ops** platform acts as a central hub for platform administration and monitoring. Multiple services can be configured and enabled through it, ranging from integrating data from sensors/IoT Gateways, data from external applications through API services, rule engine configuration, GIS map association and layers creations, workflow management to configuration of the BI Dashboard and Reports.



trinityIoT Meter Data Management Middleware

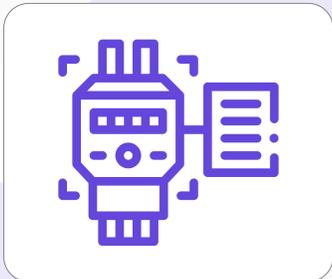
Data Collection and Processing - Pre-integrated MDM with IoT subsystems to integrate data from smart meters to collect, process, store and analyze meter data.

Anomaly Detection - Detect anomalies by processing and correlating data across domains and location intelligence is used to identify asset's location.

Validation and Estimation Rules - Validation and Estimation business rules help to provide the right meter data and charge the consumer as per the actual consumption.

This will also help to improve data quality, simplifying billing complexities, minimize chances of false alarms and raise the actual alarms from the meter data.

Meter to Cash Processing - Automated Service Order and Billing processing to deliver services to consumers, convert the services provided by the utility to revenue.



trinityANALYST AI & BI Applications

The advanced analytics application software covers bundled AI and BI applications that drive efficiencies and deliver better outcomes and build intelligent supply networks. The applications are fully integrated with Pre-Integrated AI and BI engine of the Digital Platform and leverage the data.

The AI use cases for building intelligent networks are as follows:

Energy Demand Estimation - Energy Supply is forecasted using AI applications to optimize supply-demand matching.

Non-Revenue Water Detection - The AI analyzes possible areas for leakages & alerts the utilities.

Energy Theft Detection - The AI raises alarms based on Anomaly detection from Meter consumption patterns and identifies misused energy consumption.

Predictive Maintenance of Assets - AI helps navigate failure risks from Preventive to Predictive measures for utilities.

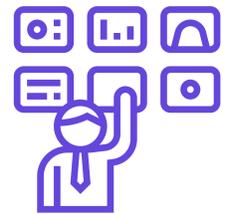


CORE PRODUCTS

trinity^{ICCC} Utility Operation Center

Integrated Command & Control Center Platform

trinityICCC - Utility Command & Control Centre is an integrated platform that aggregates and unifies data from all Smart Metering installations in field locations of the water, energy and gas supply systems thus enabling the authorities to remotely monitor, and interface with other government departments/ portals/ dashboards. Its operational dashboard provides a real-time and online view of the incidents, status of the SOPs and the KPIs to understand the operational status of the various departments. Map based visualisation provides a city-wide view of the meters and the incidents.



trinity^{MOBILE} Workforce Management

Mobile Workforce Management System

The Mobile Workforce Management system is a mobility enablement system that integrates the Utility Workforce and provides them with the required insights like the type of task, location, consumer's contact information, directions to consumer's location, date of task execution to efficiently carry out and effectively complete consumer's service requests.

The Workforce Mobile App provides all the intelligence for Utility workforce to stay connected and act on real time. It is based on user roles and supports the workforce across the various departments by supporting several types of services, e-forms, map data and image data. The progress of tasks assigned can be monitored in real-time.



trinity^{ENGAGE} Case Management System

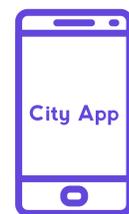
Citizen Engagement System

Case Management System - The system enables customers to connect and digitally avail the services. It provides a centralised management of the utility service requests, consumer grievances, and incidents through a case management system. Its automated workflows integrate the various departments, enable execution of the service request and reporting of the status. The Case Management System also provides support for citizens to raise grievances through omni channels & automate grievances redressal.

The **Consumer Portal** enables the Utility department to stay connected with the consumer. This portal provides information regarding energy/water consumption, billing, and complaint status. It is fully integrated with the Case Management Platform, and it automates the services delivery.

The **Consumer App** can aggregate all the Utility Services and deliver them digitally for the consumer to use. The consumers will be able to raise requests for new connections, pay their bills, track their meter consumption, and request for meter repair/maintenance. A chatbot is also integrated to automate this service delivery.

The **City App and Portal Administrator** provides predefined templates that help Utilities in configuring services & workflows to reduce deployment time & effort in introducing a new service. It also provides role-based service configuration depending on the user persona.



web
portal

BENEFITS



Meter Data Aggregation and Management

The Smart Metering system helps to integrate multiple siloed systems across the grid and maintain and manage the data in a centralized repository for further analysis.



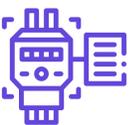
Reducing Leakages & Consumption Losses

The Smart Metering system helps in minimising economic losses and mitigate the number of leakages and thefts.



Energy monitoring and forecasting

Monitoring, Analysis, Detection and Forecasting of energy consumption.



Meeting Clean Energy & Decarbonisation Goals

Helps in addressing variability in severe weather - power generation and the impact on demand models. They need accurate, real-time data to efficiently deliver the clean energy that customers are demanding.



Improve Service Order & Scalability

Collating service order, risk knowledge and scalability metrics based on systematic collection of data and risk assessments.

CASE STUDY

Implementation of an Integrated Smart Metering System for a Smart City project in the Middle Eastern Region

Trinity deployed an Integrated smart metering solution for a Smart City project in the Middle East with a population close to 10 million. This solution integrates with AMI-HES systems with real-time metering and distribution data insights. It is also integrated into the city-wide outage management systems & SCADA systems for monitoring and ensuring an optimized usage of utilities.

Key Features & Benefits

- Integration to multiple inline Department Services – Gas, Water & Electricity to increase availability and manage operations.
- Using advanced analytics & AI for leakage management, outage management & grid reliability.
- Citizen Engagement to transform utility service delivery.
- Identification of excess energy usage, theft & leakage.
- Direct link to outage information to multiple stakeholders.
- Remote turn on/off service for customers.

Scale of Operations

**700k +
Lives Improved**

**2M +
Water, Gas and
Electricity Meter**

**100%
Digital Provided
Utility Services**

“Energy is essential for development, and sustainable energy is essential for sustainable development.”

~ Tim Wirth



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