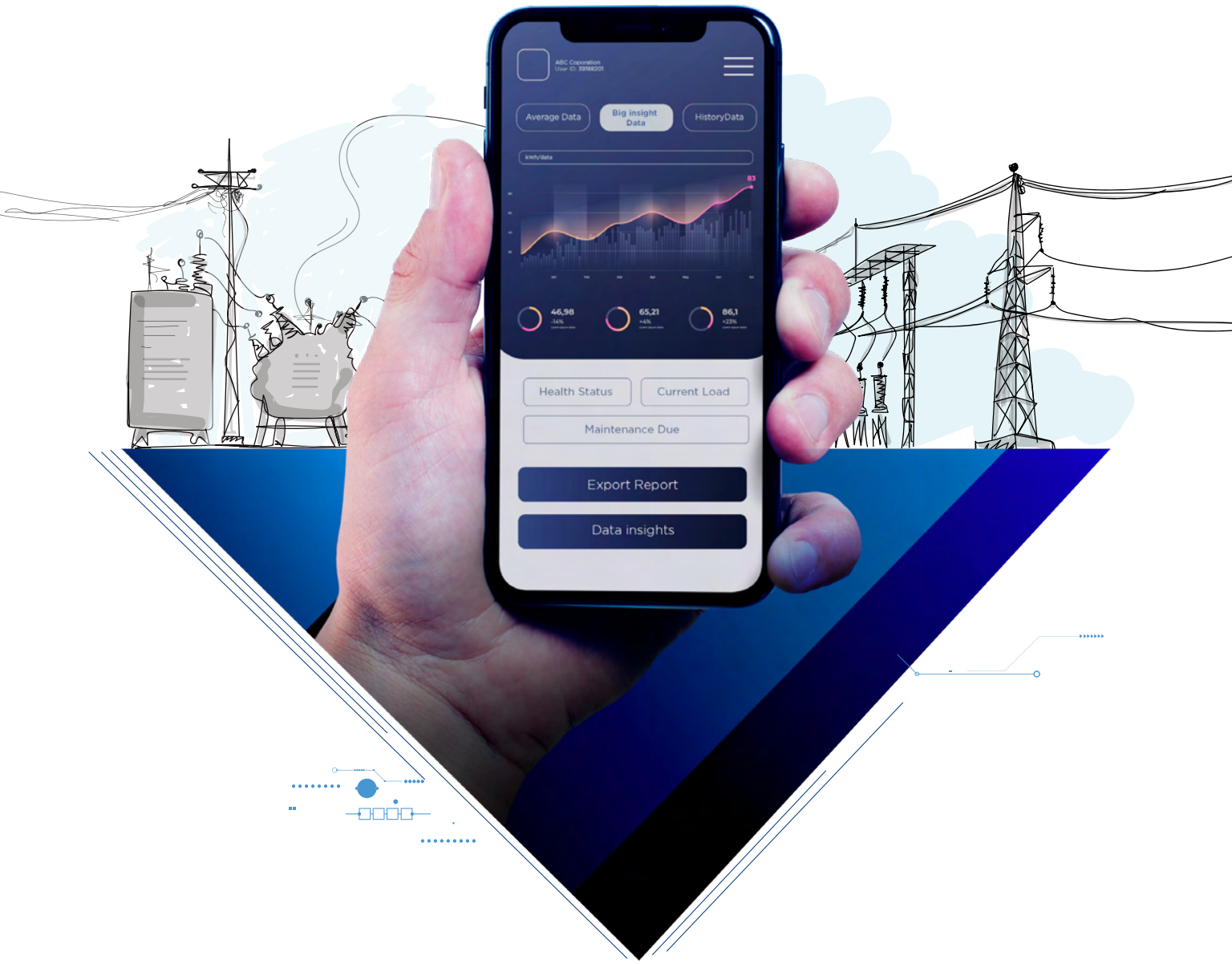
IoT WoRKS by HCL Technologies

HCL

# Utilities Operational Insights solution

## Power utilities with Big Data insights



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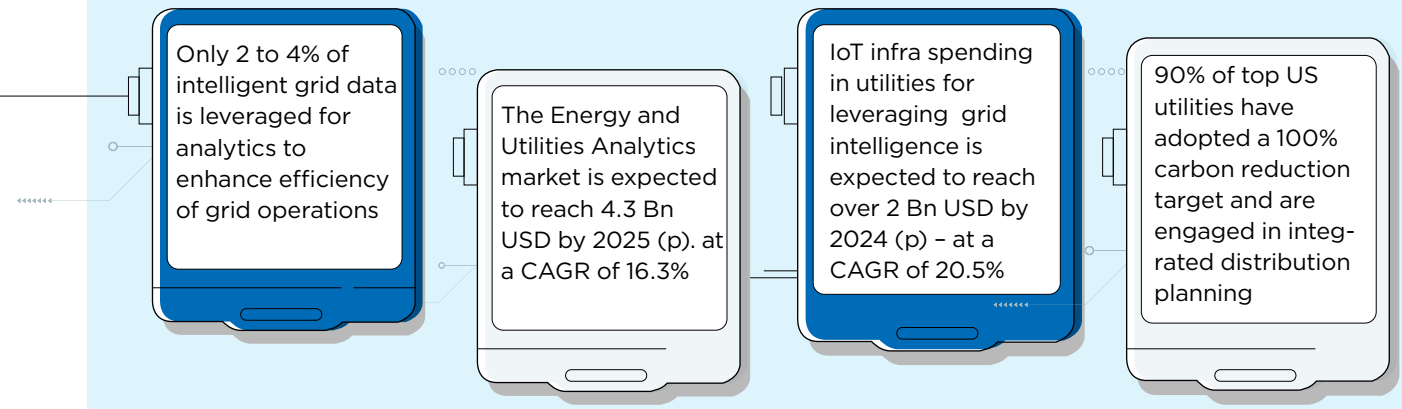
## Underlining the importance of analytics in the **Utilities sector**

Utilities industry is undergoing major transformation due to decentralization, decarbonization and digitization. The complexity introduced by today's grid due to renewable integration, microgrids, energy storage and behind the meter innovation require detailed monitoring and data-oriented decision making leveraging digital technologies such as IoT, big data analytics and AI/ML. There is a need to create a centralized data lake by connecting various IT and OT systems so that analytics processing can be carried out on this connected data to derive insights. This in turn should be fed back into existing processes to optimize entire grid operations.




**Source:** Markets and Markets, Smart Energy, US Utility

## Challenges and Drivers for adoption of **Big Data insights** in Utilities

### Complexities inherent in today's power grid

Decentralized nature of power distribution and DER penetration makes grid operations challenging

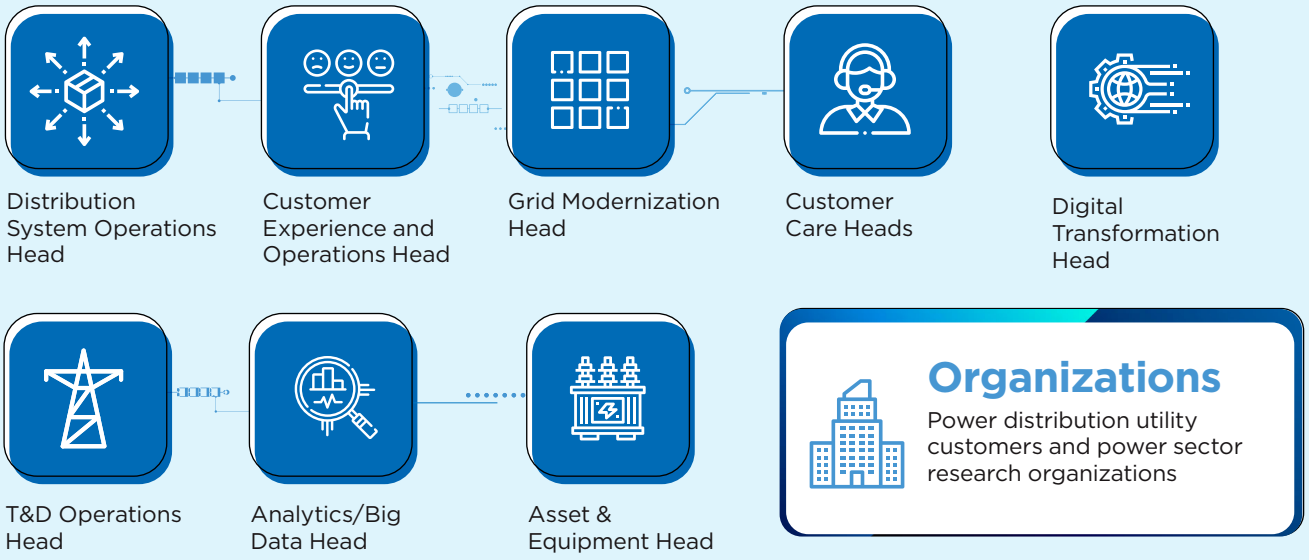
### Stringent regulatory norms

Newer regulatory regimes require utilities to show year on year improvement in targets and provide timely updates on KPIs

### Organizational focus on profit margins

Privatization has brought in renewed focus on improving margins to satisfy investors and shareholders. This makes it critical to optimize business processes and grid operations utilizing innovative technologies powered by real-time insights

## Key **Stakeholders**




## About the **solution**

**Utilities Operational Insights (UOI) solution by IoT WoRKS™** leverages our partner's Onesait Operational Intelligence IoT platform – which enables industrial processes data integration, with the capability of connecting in real-time to heterogeneous source data systems through industrial or IoT standard protocols, powering IT/OT convergence. UOI acts as a data historian storing any signal coming from the field and any point defined in a SCADA system, making it available for analysis, archiving, visualization and reporting to accommodate the visualization requirement of the entire utilities network.

## How **UOI** works

### Ingestion

of real-time and historical data.
A complete suite of Industrial and IoT standard protocols enables connection to source data systems

### Process

Streaming data pre-processing engine to optimize and add value to data gathered from ingestion (pre-calculations, rules engine, notifications, data validation, aggregation)

### Storage

Real-time and historical long-term asset-centric database, supporting large volumes of data storage capacity with optimal insertion, storage compression and data extraction processes

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## Analysis

Data scientist multi-language framework for data analysis, based on the development of models and algorithms, with instantaneous visualization capability through an integrated graphic support

## Monitoring & Notification

Web-based user-friendly tools to provide end users the ability to create intelligent dashboards, synoptic screens and analytical configurable reports, using real-time and historical data. End users will be able to easily define trigger notifications rules based on formulae and data processing algorithms, to notify alarms/events to pre-defined users or user groups

# Solution **Features**

### Real-time Convergence

IT/OT based on logical models (Ontology) for semantic integration. The asset data model describes the meaning of entities, relationships, and data

### Dynamic Dashboards

Web-based dashboards displaying real-time and historical data – can trigger alerts in case of deviations from defined conditions

### Powerful Toolset

Rich set of tools and applications covering data ingestion, storage, transformation, analysis and output visualization

### Integrated Governance

Enables integrated governance of elements that make up the platform

### Data Science

Provides tools for open analysis and exploitation of gathered data allowing the user to discover new trends, identify relationships, define new performance indexes and test hypothesis

### Dashboard Manager

Enables end users to develop intelligent dashboards based on dynamic gadgets and templates, through an open user-friendly tool. Users can share their already developed dashboards with other users in a common framework

### Synoptic Manager

End users can develop synoptic screens through the Synoptic Manager, using basic geometric figures or predefined symbol libraries. Used for building mash up views for IoT solutions

### Reports Manager

Jasper Reports as the standard tool to develop reports and visualize them in different formats

### Notification Manager

Enables end users to easily self-define trigger notifications rules to notify alarms or events to users or group of users previously defined

### Administration Module

Enables administrator to manage every Onesait Operational Intelligence component from a unique central console. It includes user administration tool for users and roles creation, identification, permissions and tracking providing a high level of security in all the processes and components

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## Solution **Benefits**

**Generate Intelligence-based Value**
Utilize analytical, operational and process intelligence to analyze operational data to develop insights and KPI dashboards

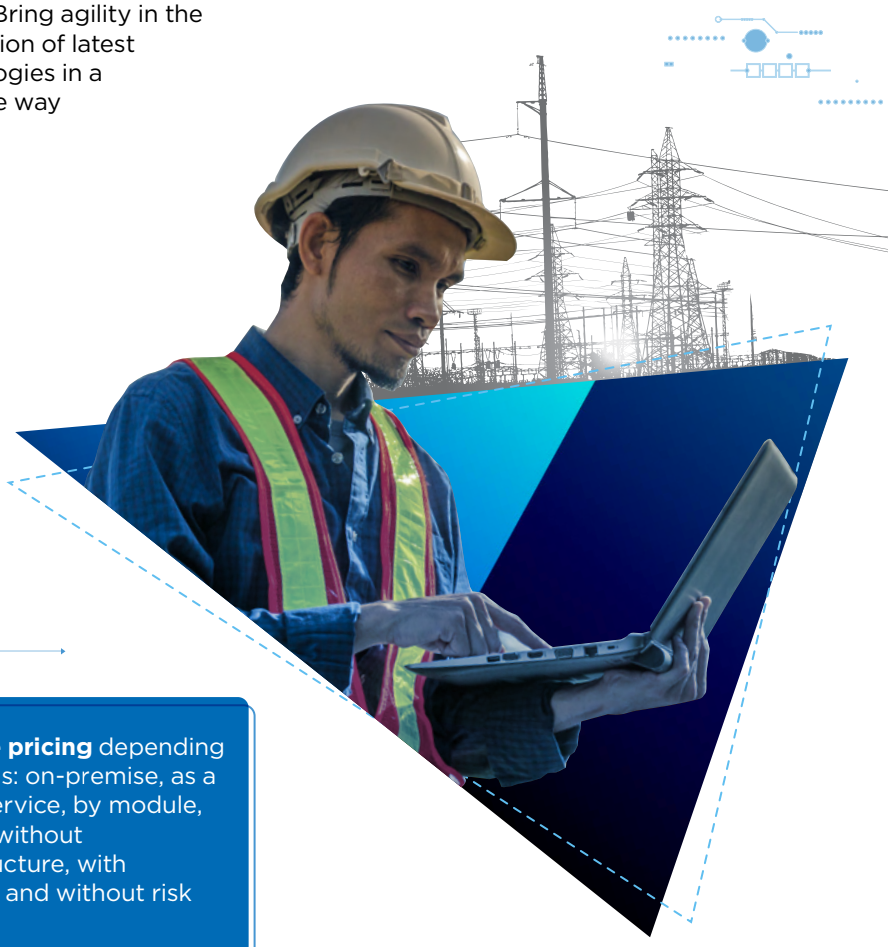
**Enhance Flexibility**
Based on CaaS technologies and containers, introduce operational simplicity under unified console. Balance compute capacity and storage across Cloud and devices

**Improve Service Reliability**
Monitor operational reliability parameters based on data from SCADA, OMS, DMS etc. and provide insights to improve reliability

**Streamline Operations**
Leverage insights and KPIs based on AI/ML-driven models to optimize operations, improve efficiencies and bring in cost savings, introduce interoperability and self-discovery

**Introduce Robustness, Scalability**
Scale rapidly, enable development of solutions securely. “Think Big, Start Small”. Bring agility in the application of latest technologies in a cohesive way

**Creating value through integration with Microsoft Azure, AWS & Dell**



## Solution **Differentiators**

Built on an **open-source platform** which makes the most of the capabilities of any vendor, avoiding "vendor lock-in“

Provides **multi-platform support** include public cloud, private cloud and on-premise platforms

**Flexible pricing** depending on needs: on-premise, as a cloud service, by module, with or without infrastructure, with support and without risk

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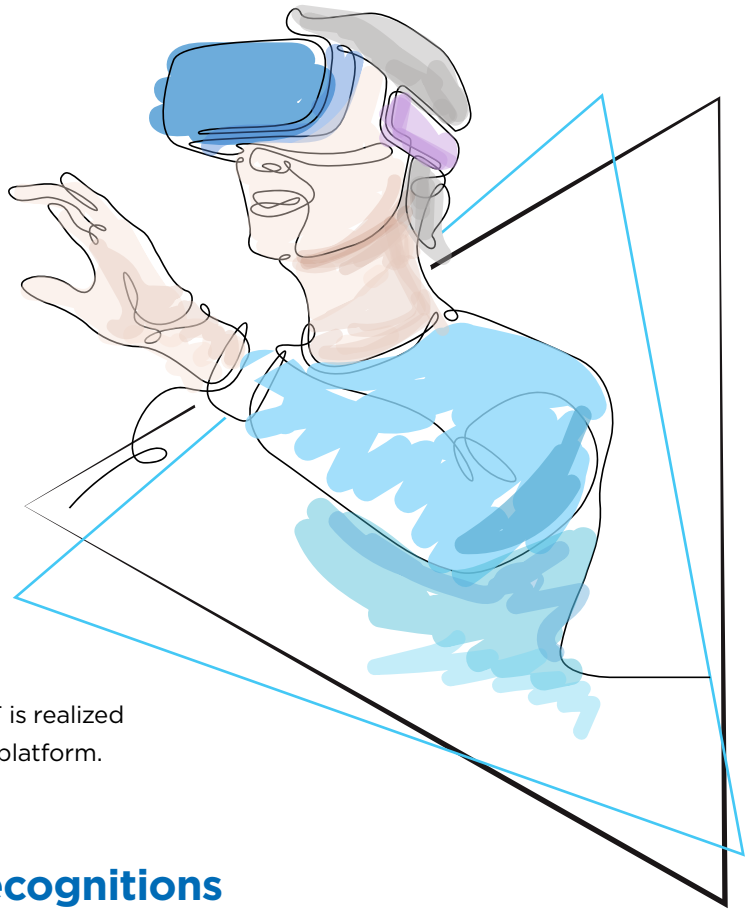
## **Who** we are



**IoT WoRKS™** is a dedicated IoT business unit of HCL Technologies. Our award winning, best-in-class, customer and industry specific, deployment ready solutions co-created with customers, enable them to maximize effectiveness and returns on their asset investments.

Rated as a global leader in IoT consulting & services by top analysts, our solutions, enable IoT-led business transformation through creation of more efficient business processes, new revenue streams and business models that deliver measurable business outcomes.

At HCL we believe that the transformative impact of IoT is realized by IoTizing the 'things', connecting the assets to a data platform.

## Analyst **Recognitions**

**LEADER**
IDC Marketscape, IoT Consulting and Systems Integration Services, 2020
**IDC**

**LEADER**
Zinnov Zones for Connected Assets & Connected Logistics, 2019
**Zinnov**

**LEADER**
ISG Provider Lens™ for IoT managed services, USA 2019
**ISG**

**LEADER**
ISG Provider Lens™ for IoT consulting and services, USA 2019
**ISG**

**LEADER**
ISG Provider Lens™ for IoT in Manufacturing, USA 2019
**ISG**