



Modam

Implementation Benefits
Brochure

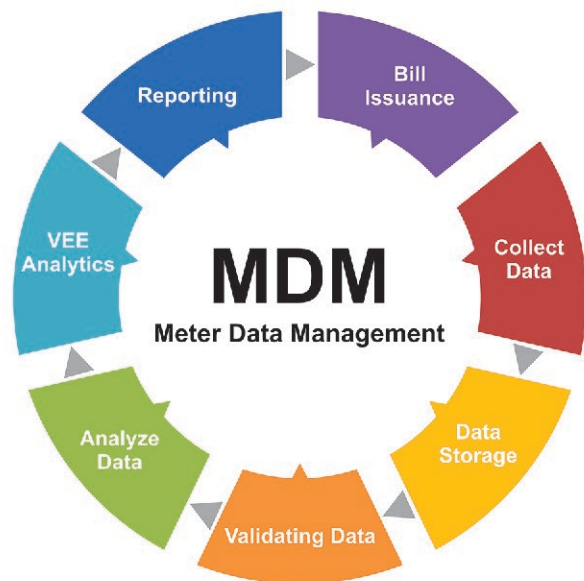
Benefiting from MDM system

A Meter Data Management (MDM) system provides many benefits beyond just delivering advanced metering data. Data provided by the MDM systems can be used to improve system operations throughout the business. The MDM solution is the key unlocking the full potential of the energy network grid.

What is MDM?

Meter data management (MDM) refers to software that performs long-term data storage and management for the vast quantities of data delivered by smart metering systems. This data consists primarily of energy consumption data and events that are imported from software managing the data collection in advanced metering infrastructure (AMI) or automatic meter reading (AMR) systems.

In some cases the combination of AMR and MDM systems as they should be called AMI, instead is called MDM software but the description is as AMI. MDM is a component in the smart grid infrastructure promoted by utility companies. This may also incorporate meter data analytics, the analysis of data emitted by smart meters that record consumption of electric/water/gas/heat energy. Government agencies are leaning towards the advanced metering infrastructure systems to reach the goal of "Smart Grid", implementing automated meter reading and storage solutions (MDM) in the network grid.



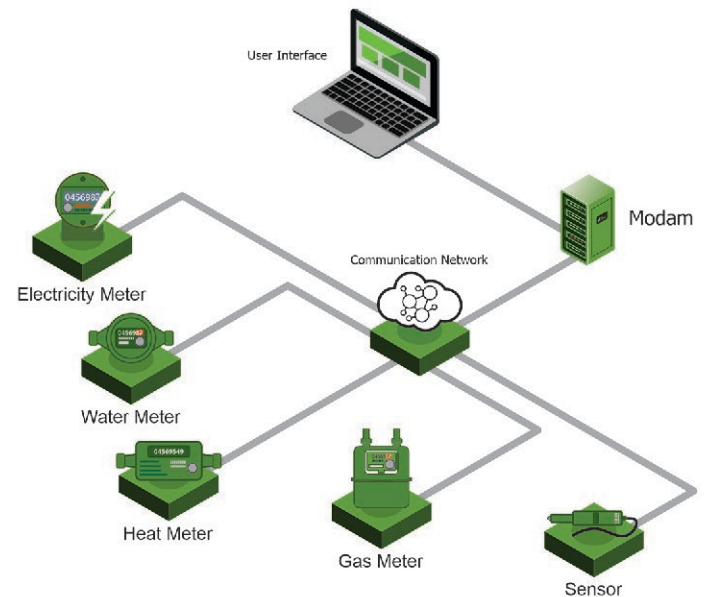
An MDM system will typically collect and import the data, then validate, cleanse and process it before making it available for billing and analysis. It also extends AMR technology by providing two-way meter communications, making it possible to send commands to the meter for various purposes including demand-response actions, time-based pricing (tariff) management and metering configurations.

Meter data management provides several advantages for utility companies including data reliability, data loss prevention, network grid monitor, costs reduction and etc.

Making Utilities Smarter

Having a smart network that collects volumes of data from residential and commercial electric/water/gas/heat meters, utilizing a robust data management solution is essential for the utility sector. Providing secure, accurate and reliable data, Modam as a MDM software that combines AMI and MDM functionalities in one perfect solution, delivers operational efficiency that defines new frontiers to the business value.

Systems that operate with multiple isolated systems and databases, are prone to great bottlenecks, data losses and IT problems which lead to unoptimized resources, increasing staff and management costs thus reducing the efficiency of the whole system. Making the whole system as one integrated smart, fast, reliable and optimized smart network reduces the costs of field service, transferring data, providing real-time data needed for managing and growing the grid infrastructure to whole utility sector and customers.



Improving grid reliability, operations and customer satisfaction means collecting, validating, analyzing and acting on quality smart device data securely maintained in your data management system. To make these business activities function seamlessly, utilities rely on a meter data management system. MDMs provide an ideal solution creating a system of record where consistent, secure and auditable processes are enforced, and where all users and external systems can access accurate and reliable data from meters.

How it Works

A MDM system consists of three parts and each part plays an essential role in preparing and providing accurate data to the business owner.

- Meter data Collection
- Data processing
- Reporting

Meter Data Collection

Energy grid is a network infrastructure designed to deliver energy from sources to customers. Measuring the nodes of this network from its start points to its end points, provides plenty of benefits for the utility companies. Each node in the network grid contains some factors that are measured by meter devices like "Electricity Meters". These meters have limited amount of storage on them making it essential to collect the measured data using a tool and store in a database.

The collection of data from meters can be done manually by using a combination of an HHU device and an optical probe as a data bearer and the transferring the collected data to a database manually. It can also be collected remotely using a third-party MDM software using a type of communication network, thus transferring data directly on-demand from the meter to the database.

Using manual labor in collecting data has many disadvantages for the utility companies. Some of these disadvantages are mentioned below:

- Time-consuming activity
- Meter reader labor costs
- Dangers and incidents for meter readers
- Access to meters to read them
- Human errors causing invalid and unreliable data leading to costly decisions
- No on-demand data making incident management impossible
- Non-frequent data collection resulting in not plannable data
- Meter reader and customer collusion resulting in invalid data
- Several inconsistent systems resulting in high maintenance costs

Using an AMI solution with an MDM software not only solves the problems of manual reading, but also adds many beneficial features. Some of these features are mentioned below:

- Fast and frequent consumption information
- Small periods of data collection leading to highly detailed analysis of consumption data
- Reduced field service costs through remote connect and disconnect and on-demand read capabilities.
- Reducing the number of maintained systems between collection, billing, outage, engineering and work management systems by having a stand-alone comprehensive system.
- Increased quality of data by operating a single, central system, instead of separate and inconsistent systems
- Reduced IT implementation and maintenance costs
- Improved data reliability with automated, valid data reading straight from the meter
- Reducing data losses through VEE implementations
- Reducing manual intervention for residential customers, leaning focus on your most demanding customers
- Improved security and accountability through consistent auditing and versioning of all data

Data Processing

Data collected from meters must be validated, cleansed and processed they can be used in billing and analysis. These processes are called VEE analytics. VEE analytics consist of validation, editing, and estimation of data collected from meters.

In monitoring and reading meter data, there are times that faults in the grid network or meter itself can cause missing data or wrong data. In these cases there are validation and estimation scenarios that are implemented in the MDM engine and are customizable in many options by the customers, that depending on the configuration, it intelligently recognizes the false or missing value, calculates and replaces the data.

Validation rules help recognize the meter faults resulting into invalid data such as value in the future, data being lower or greater than average, data being lower or greater than a defined value per meter, negative consumption, value in the future and etc. Identifying these faults in time, can help prevent more data losses by alerting the utility operators in time so they can deploy repair teams on-site to fix the occurred problem at the specific node in grid.

Estimation rules help fill missing or invalid data according to the configured values. Missing data can be caused by power outages and meter malfunction. Invalid data on the other hand, can be caused by many situations including meter malfunction in tariffs, load profiles, date and time errors that can cause value in the past or future by the configured interval, faults in defined ratios and etc.

VEE also can help identify faults in the network and meters, resulting in great missing values reduction and providing reliable data to the customers.



Reporting

The first duty of an MDM software is to collect and process the data from meters and give them meaning through various reports implemented in it. The accuracy of these reports rely only on the meter data accuracy. Having practical and useful reports, will result in grid management efficiency.

Reports can be thoroughly customized depending on the country, grid technology or energy policies.

Modam

As one of the most powerful and fast MDM systems, **Modam** is a Modular Platform capable of meter data collection and offers new possibilities for the utility sector with solutions for energy suppliers, grid operators, metering companies, energy service providers to offer innovative and attractive services. **Modam** platform provides useful and practical results and insights, helping all utility sector companies do better performance growing and optimizing the grid network.

Modam encompasses a portfolio of field-tested, analyzing large amount of data and revealing patterns, trends and complex reports combined with a results-driven deployment approach delivers greater business insights with less risk than other alternatives.

Benefiting from a very powerful engine, **Modam** provides a Fast, Reliable and Stable collection for utility companies that demand accurate and on-time data. The Intuitive user interface reduces the costs of user education resulting in lesser employee preparation period.

Other than the features of a standard MDM software, Modam provides several advantages that makes it a unique among other MDMs:

- Intuitive user interface, reducing training and operating costs
- SaaS, cloud concepts or non-site installations enable implementations seamless scaling from small pilots to large scale roll-outs
- Modular design principle and the **Modam** Modules ensure easy adaptation to new requirements and your own business goals

Intuitive user interface

The operation education costs are of highest resource wastes that many companies endure. Also operating with multiple isolated systems and databases increases the education costs of employees and more than that, the rate of human errors leading to not reliable data thus reducing the business value. This normally increase when migrating to a new system.

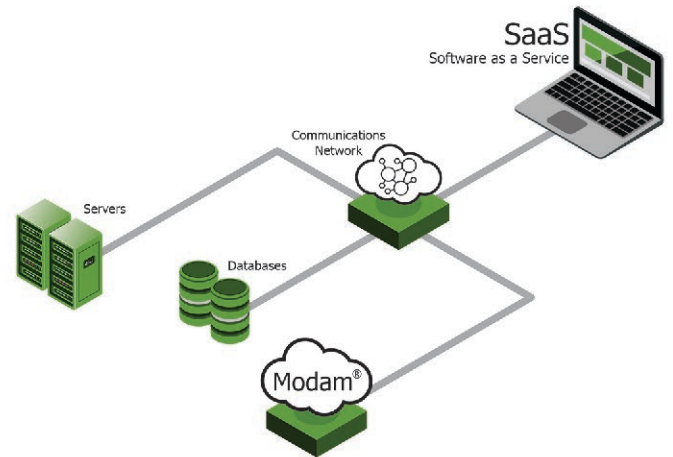
Having an intuitive user interface that is designed by years of experience in the field and study over user experiences, reduces the costs of education by a great measure. An intuitive user interface provides a user friendly environment that user performs all business related processes without need to be educated. The only education needed for the employees will be the business itself.

Non-site installations

Having a comprehensive software also generates the need for a set of servers to be installed and maintained on. There are customers with certain degree of security guidelines which are obligated to purchase and maintain a local datacenter and install the MDM software on that configuration. On the other hand there

customers which do not wish to purchase and setup such costly datacenters. There are many reasons that convinces customers not to setup a datacenter locally, such as setup and maintenance costs, limited number of metering points, no hardware upgrade needed when number of metering points grow, workplace availability over the internet making it possible to work from anywhere, not needing to upgrade to newer versions provided by developer, and etc.

Modam is designed to be installed both on-site and non-site, providing customers with variety of choices in utilizing it to their benefit, as it diverts the implementation costs towards business growth.



Modular Design

Designing and developing a software in modular structure is crucial for large-scale software. It reduces developing and support time, enabling software developing companies to provide better and efficient solutions faster, giving customers the service they need in much shorter time resulting in business value growth. This structure also enables rare bugs to be fixed just by altering a certain part of the software. This makes changes and upgrades much more reliable for customers as there are many bad structured software which by each upgrade cause many problems for users, thus reducing productivity and causing great financial losses. **Modam** utilizes modular design principles which makes it a reliable, fast and powerful software made to provide benefit and business value to the customers.

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