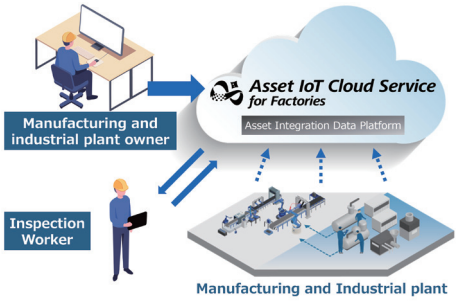
Toshiba Digital Solutions Corporation

Asset IoT Cloud Service for Factories

Features



- The “Asset IoT Cloud Service for Factories” is an asset IoT cloud service for manufacturing and industrial plants, which digitizes various information of facility management and maintenance operations at manufacturing and industrial plants, to increase the efficiency of maintenance work and achieve energy saving operations.
- The “Asset Integrated Data Platform”, developed based on the operational and maintenance knowledge the Toshiba Group has accumulated over many years in the field of social infrastructure and industry, is incorporated for the purpose of collecting and storing IoT data, to enable data utilization suitable for onsite operations.
- Responsive actions are required to deal with the declining labor force, rising energy prices and demand for carbon neutrality in recent years and Asset IoT Cloud Service for Factories visualizes the operating status of a series of facilities from various perspectives, enabling the formulation of equipment operation plans for facilities, with a focus on reducing costs, saving energy, stabilizing the supply of power and reducing CO_2 emissions.
- Furthermore, the maintenance of the facilities, before they break down. is made possible not only by remote monitoring, but also by detecting anomalies with facilities, even during the course of routine tasks performed by operators at manufacturing and industrial plants. Improved efficiency of inspection operations onsite is achieved through the automation of report creations, thereby contributing to shifting the workload of maintenance workers to their core duties.

Basic Concept or Summary

Functions that contribute to decarbonization and carbon neutrality

- Gaining an understanding about CO_2 emissions
  - ➢ Consumption of power, such as electricity, gas, in-house generated electricity and the like, as well as plans and an actual record of utility charges, along with CO_2 emissions, are displayed on the dashboard for monitoring and gaining an understanding of the status

Functions that contribute to energy savings and optimizing power costs

- Power trend management
  - ➢ The current or previous consumption status of electricity, water, gas and other such power sources at each facility site, area and equipment relations, can be verified graphically.
- Demand forecast of power
  - ➢ The forecast line for the future can also be displayed based on previous usage records. Rated and planned values can be displayed simultaneously to monitor upper limits, while alert displays and email transmissions can be triggered whenever there is a possibility of these being exceeded.

Functions for supporting stable the operation of manufacturing and industrial plants

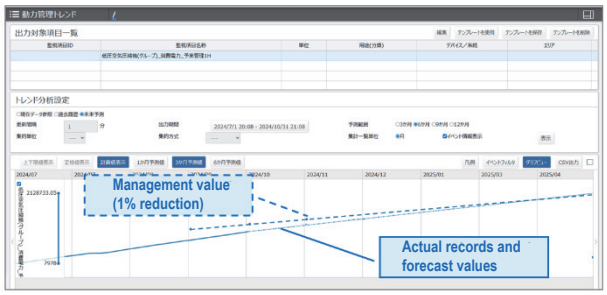
- Remote central management of sites and facilities
  - ➢ The operating status of equipment scattered across manufacturing and industrial plants, can be remotely monitored continuously from various angles, using web browsers. Collected IoT data can be stored in a data platform in order to manage data centrally and without scattering it.
- Visualization of facilities and systems
  - ➢ Highly flexible screen displays, which provide overviews of facilities at manufacturing and industrial plants, systems of building internal facilities, systems of specific facility groups and the like, can be created for immediate use.
- Alert notifications for detection of anomalies
  - ➢ Anomalies in operational data can be detected and displayed and a notification can be sent by email. Furthermore, the rule of thumb for sensing signs of malfunction, provided by experienced workers, is combined with the AI modeling of the engine, to detect signs of malfunction early.

Functions that contribute to a labor-saving in maintenance operations

- Automated calculations and aggregations
  - ➢ More than 30 types of calculations can be performed to derive average values, mean values, standard deviations and the like, based on accumulated data that can be combined to define and execute multiple aggregation patterns.
- Automation of report creations
  - ➢ Daily, weekly, monthly and annual reports can be created in forms that serve the purpose, with the results of calculations and aggregations embedded automatically to continuously output reports with ease.

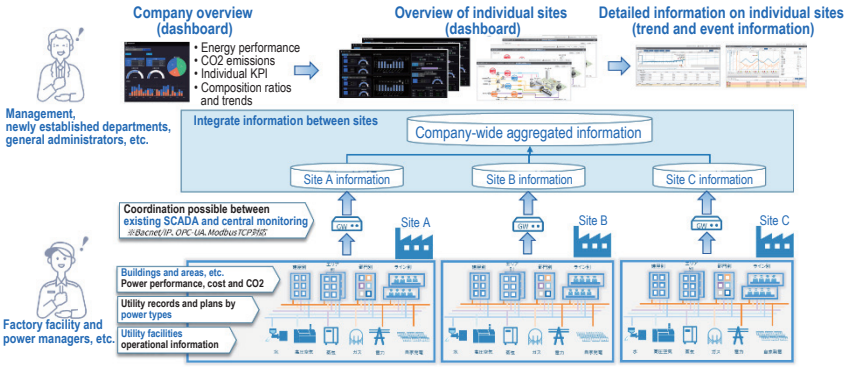
Energy-Saving Effects & Special Remarks

◆ Required reduction targets, such as those required by energy conservation laws, can be set as management values in the power trend management and demand forecasting, to easily gain an understanding of the progression status of reductions.

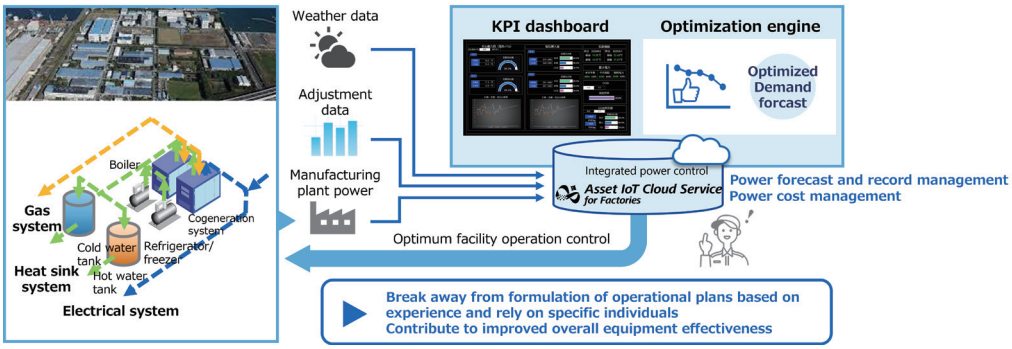


Responding to the need for management and timely visualization of reduction plan values
Complying with laws and contributing to energy cost reduction

◆ Integrating summarized and aggregated power usage status and CO_2 emissions. at multiple internal sites and manufacturing plants, along with KPI for each role on a dashboard, facilitates enhancement, as well as considers measures of management in units of organizations and sites.



◆ Not just power data, but production plan and weather data, are also integrated, managed and linked to the optimization engine to perform highly accurate demand forecasting, in order to formulate operational plans and achieve operational control to minimize costs and CO_2 emissions.



Break away from formulation of operational plans based on experience and rely on specific individuals
Contribute to improved overall equipment effectiveness

Track Record or Implementation Plans

Domestic Toshiba Corporation Yokohama Plant, Fuchu Plant, etc.
Toshiba Electronic Devices & Storage Corporation Himeji Semiconductor Manufacturing Plant
Customers in manufacturing industry

Overseas Currently being proposed (North America, Vietnam, etc.)

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