

02 Engineering Business

Advanced Engineering with ICT—Creating and “*Ni-na-u*”* the Foundation for Life Powered by Manufacturing and Service Capabilities

* “*Ni-na-u*” is a Japanese word meaning supporting and remaining responsible.

Atsushi Okamoto Senior Managing Director



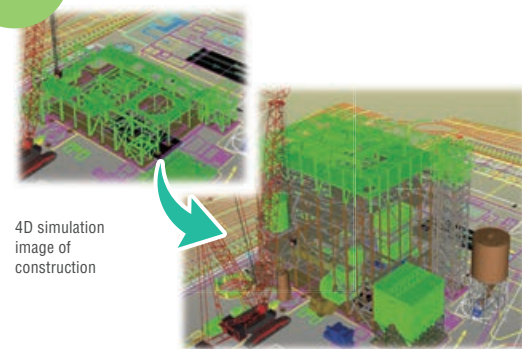
Our mission is to provide solutions to social issues through planning, designing, building and operating infrastructure supporting people's life and industries. We have a wide range of businesses such as waste-to-energy plant, water treatment plant, renewable energy power generation plant and bridges. As privatization of public services is requested, we are actively

expanding “*Ni-na-u*” business in addition to creating social infrastructure. Advanced technologies such as IoT, big data analysis and artificial intelligence (AI) are key drivers for creating and “*Ni-na-u*” the foundation for life. We make the best use of such advanced technologies for state-of-the-art infrastructure business.

Creating the Foundation for Life

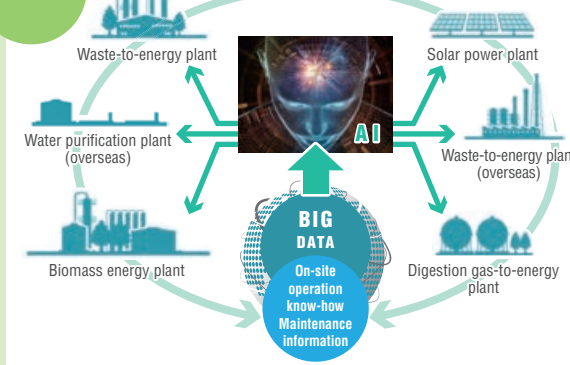
“*Ni-na-u*” the Foundation for Life

Creating



EPC: Actively utilize ICT in fields of engineering, procurement and construction

“*Ni-na-u*”



Propose solutions to optimize operations through IoT, big data analysis and AI

ICT Platform with Advanced Security Supporting Creating and “*Ni-na-u*”

Secure and High Quality Connection from Plants to the Cloud
Data storage, Analysis and Application Development Platform in Scalable Cloud



Global Remote Center (GRC) Opened in March 2018



GRC was opened at Yokohama HQ to provide remote operation and maintenance support for a variety of plants utilizing AI technology. An advanced cloud based analysis platform with a high quality and secure network was established to support GRC activity. At the waste-to-energy plant, the combustion normalization AI and the interactive operation support AI have

been developed and are being used. Also, the power supply and demand prediction AI supports power supply adjustment. We will expand the usage of AI, in such fields as predictive diagnosis to prevent operation failures and equipment diagnosis of pipelines, to provide a variety of highly value-added services.



Global Remote Center (Yokohama HQ)

- Integrate information from all plants, including those overseas
- Provide 24-hour remote operation support

Plant operation support

- Safe operation
- Reduced operating costs
- Overseas plant monitoring
- Recovery support if trouble occurs

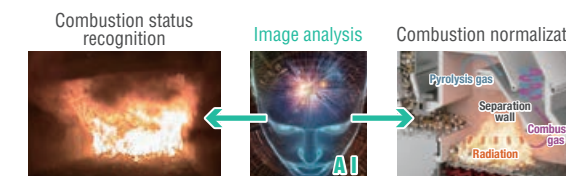
Optimized power generation

- Optimize operations in conjunction with power supply and demand change

Diagnosis and maintenance of facilities, including industrial equipment

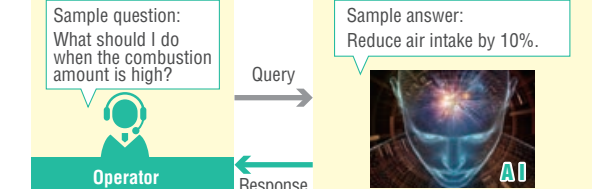
Combustion image analysis system

AI analyzes the combustion status of waste-to-energy plants in real time. AI provides support to normalize combustion when necessary.



Interactive operation support

Operators ask questions in natural language to AI and receive a vocal reply.



JFE Voice!

CSMS Certified!

Global Remote Center (GRC) acquired CSMS (Cyber Security Management System) certification, which validates GRC as a facility executing cyber security risk management efficiently. We will provide a variety of operation services globally with robust security measures.

Mitsutoshi Senoo Section Chief, GRC Operation Control Office, Control Technology

