# JFE News Report

### Selected as a "Competitive IT Strategy Company" for five consecutive years

JFE Holdings has been selected as a Competitive IT Strategy Company in the steel industry for five years in a row. These companies are selected by the Ministry of Economy, Trade and Industry and the Tokyo Stock Exchange among all listed companies as names that are proactively implementing competitive IT strategies, as a way to promote the strategic use of information technology (IT) by Japanese companies.

The proactive use of cutting-edge IT to meet the needs of society and pursue a growth strategy is one of the major initiatives included in the JFE Group's sixth medium-term business plan, formulated in April 2018, and we are carrying out various activities to this end.



JFE Shoii Trade

General Manager Vice President, Vice Preside ICT Center. JFE Steel JFE Engineering

### Activities as a Competitive IT Strategy Company

Year	Project	IT application
2015 (1⁵t year)	J-Smile® (Sales of steel products)	<ul> <li>Established change-tolerant information structure based on data-oriented approach</li> </ul>
	Standardization system for overseas downstream processes	<ul> <li>Used ERP and cloud to standardize operations and systems globally</li> </ul>
	J-Flessa <sup>®</sup> (Sales and production of steel products)	<ul> <li>Enhanced ability to formulate plans using dedicated software package</li> <li>Connected planning data and evaluation data from peripheral systems using service-oriented architecture</li> </ul>
	Sharing of new sales information	<ul> <li>Used cloud and social media to manage customer informa- tion centrally and share information across departments</li> </ul>
2016 (2 <sup>nd</sup> year)	Innovation of steelworks business processes	<ul> <li>By upgrading mission-critical systems at steelworks, innovated business processes to increase efficiency</li> </ul>
	System for remote monitoring and operation support at plant facilities	<ul> <li>Created system that makes optimal operation support at plant facilities and optimal adjustment of power supply and demand possible</li> </ul>
2017 (3 <sup>rd</sup> year)	Use of digitalization technologies to innovate maintenance of steelmaking equipment	<ul> <li>Used technologies including artificial intelligence (AI) and big data to innovate maintenance of steelmaking equipment</li> </ul>
	Introduction of AI to operate and manage waste-to-energy plant	$^{\circ}$ Used AI to strengthen stable, safe, optimal operation
2018 (4 <sup>th</sup> year)	Sophisticated supply chain linkage across the JFE Group	<ul> <li>Achieved digital manufacturing within the Group by virtually integrating JFE Steel and JFE Shoji Trade</li> </ul>
	Use of AI to innovate remote monitoring and operation support at plants	<ul> <li>Established the Global Remote Center using AI to integrate remote operation support at each plant</li> </ul>
2019 (5 <sup>th</sup> year)	Integration of maintenance systems and use of sophisticated ICT at steelmaking facilities	<ul> <li>Introduced J-mAlster<sup>®</sup> system to support the recovery from control failures</li> </ul>
	Use of data analysis platform to train plant engineers to be data scientists and improve operational efficiency	<ul> <li>Created the Pla'cello data analysis platform that makes it possible to detect signs of abnormalities and predict demand</li> </ul>

## Initiatives as a 2019 Competitive IT Strategy Company

#### Integration of maintenance systems and use of sophisticated ICT in steelmaking facilities

In addition to opportunity loss in manufacturing and shipments, problems with steelmaking facilities can disrupt supply chains, having a major impact on customers' businesses. We consider the minimization of the effect of equipment failures to be an important management issue.

Previously, maintenance personnel referred to various manuals and past examples to identify the cause of equipment failures, or relied on the expertise and judgment of veteran engineers. As these veterans age, quickly passing on their engineering skills and knowledge and training younger engineers have become a particularly pressing issue for improving our ability across workplaces to address failures.

Given this situation, the J-mAlster®\* system to support the recovery from control failures was introduced in 2017 (the first among Japanese steelmakers) by converting these various manuals and maintenance records that include the experience and expertise of veteran engineers into databases and applying AI technologies to these stores of data, to make it possible for maintenance staff to search efficiently for useful information to recover from failures. The rollout of the system to all manufacturing lines was completed in fiscal 2018.

\* J-mAlster®: JFE Maintenance Al of Smart TPM for Electric Repairs





#### Use of data analysis platform to train plant engineers to be data scientists and improve operational efficiency

To utilize AI and big data analysis in plant design and operations in general, the plant domain knowledge of plant engineers is required in addition to the advanced knowledge in informatics and statistics.

In November 2018, JFE Engineering built and started operating the Pla'cello data analysis platform that makes it possible to do tasks such as "detect signs of abnormality" and "predict demand" even without "advanced data analysis knowledge." This allows the company's engineers with plant domain knowledge to analyze data using an intuitive "drag and drop" process.

There were many cases when data analysis took as long as one week when general spreadsheet software was used for data analysis. Pla'cello makes it easy to analyze operations, detect warning signs, predict demand and diagnose images, reducing the time required for data analysis-related operations by up to 90%. More than 100 employees have used the platform during its first four months of operation, and JFE Engineering aims to increase the number of its internal engineers engaged in data science to 300 by the end of fiscal 2020.

In addition to time-series data analysis at plants, Pla'cello can be used in a range of situations including integrated parts and material management between facilities and work sites (IoT technology) and to visualize management information. We are working to expand the platform's functionality further and apply it to various Group operations.



- Enabling 300 plant engineers to be data scientists
- Reducing time required for data analysis by 90%