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Mitsui Chemicals, Inc.
NEC Corporation
dotData, Inc.

Mitsui Chemicals Teams up With NEC and dotData to Trial AI-Based Price Change Forecasting for Market-Sensitive Products

Maximizing profits through digital transformation

Mitsui Chemicals, Inc. (TSE: 4183; President & CEO: HASHIMOTO Osamu) has teamed up with NEC Corporation (TSE: 6701; President and CEO: MORITA Takayuki) to trial an AI-based system for forecasting changes in the prices of specific Mitsui Chemicals products that are sensitive to market conditions. Based on the results of this trial, Mitsui Chemicals intends to work toward the full introduction of an AI-driven demand forecasting system to avoid losses caused by price fluctuations and increase profits through appropriate procurement, production and sales.

The trial was carried out using the dotData AI software platform developed by dotData, Inc. (California, U.S.; CEO: FUJIMAKI Ryohei), which automates all data science processes.

◆ Background

Mitsui Chemicals has conventionally forecast trends in product demand from past price and profit trends, as well as from exchange rates and other data collated weekly, based on the knowledge and experience of the company's business staff. However, as globalization has progressed in recent years, making forecasts that anticipate sudden changes in market needs has become difficult, necessitating optimal control of not only output but also raw material procurement costs and quantities.

◆ Trial

Mitsui Chemicals selected for trial a number of company products that are prone to influence by difficult-to-forecast market conditions. The dotData

platform supplied by NEC was used to analyze a diverse array of data, including daily and weekly inventory data for the products over the last few years, as well as plant operating rates and sales figures. dotData then automatically extracted the most valid of the innumerable potential features to build a high-precision price forecasting model.

◆ **Results**

While there are still some areas requiring ongoing improvement, the trial revealed how dotData can be used for high-precision forecasting of the following month's price for a given product, enabling Mitsui Chemicals to price products more appropriately based on market trends, formulate better sales plans, and execute procurement and production in accordance with those plans. Mitsui Chemicals anticipates that the platform's adoption will lead to reductions in inventory worth several hundred million yen.

The trial also provided fresh business insights that were not readily apparent to human analysts, such as identification of a correlation between any changes in X and the price of Y.

◆ **Quotes from Each Company**

Masao Sambe, executive officer, Digital Transformation Division, Mitsui Chemicals*

"Amid increasingly intense global competition, Mitsui Chemicals intends to become more competitive via the digital transformation of demand forecasting, tapping into advanced automated machine learning technology. This move will speed up our efforts to achieve corporate transformation focused on a customer-driven business model and solving social issues by reducing procurement costs, cutting lead times and reducing CO2 emissions through the optimization of distribution."

MORI Hideto, Executive Director, NEC

"Through our partnership with dotData, NEC has supported numerous clients to date in achieving digital transformations. The combination of dotData's market-leading technology and NEC's consulting capabilities will not only support Mitsui Chemicals' efforts to achieve innovative change but also

contribute to resolving social issues through this initiative.”

FUJIMAKI Ryohei, Ph.D., CEO, dotData.

“We at dotData are excited to provide our high-precision AI-based forecasting and business insights to assist Mitsui Chemicals in its digital transformation and its efforts to solve the challenges faced by society. We look forward to achieving further progress with Mitsui Chemicals and NEC as partners in this collaboration.”

*Mitsui Chemicals established the Digital Transformation Division in April 2021. Focused particularly on business operations and supply chains, the Digital Transformation Division is working to speed up digital transformation efforts company-wide.