News Release
For Immediate Release

HITACHI

Hitachi High-Tech and NOF Metal Coatings use materials informatics to improve the efficiency and sophistication of research and development work

Tokyo, August 19th, 2025 Hitachi High-Tech ("Hitachi High-Tech") is providing its MI Solutions using Materials Informatics ("MI") to the NOF Metal Coatings Group ("NOF"). We are working together to explore ways to improve the efficiency and sophistication of research and development operations. This has led to a more than 50% reduction in costs related to the number of experiments and time required, as well as to the discovery of new ideas that were difficult to achieve by our own know-how alone, thereby contributing to improved efficiency and sophistication in our research and development work.

Background and Overview

NOF's high-performance thin layer coating technology is used to improve the durability and functionality of metals. NOF mainly develops and manufactures rust-proof materials that protect metals from rust, and provides them to a wide range of industries including the automotive and aviation industries, both in Japan and overseas. In recent years, there have been more and more demands regarding new value and product development, such as product safety and consideration for the environment. In addition, we have previously relied on the experience of experienced engineers for the advancement of research and development work, but as more experienced engineers are getting older and the number of young engineers increasing, we wanted to transform conventional methods and develop data-driven technologies in order to speed up our research and development process.

Under these circumstances, Hitachi High-Tech provided its MI Solutions to NOF, aiming to accurately understand the current situation and identify key issues through repeated dialog, then provide continued support in solving these issues through MI and data analysis. As a result, NOF has managed to reduce the number and duration of experiments by more than 50% for research and development work of specific topics, compared to before using MI. They have also been able to develop new ideas that could not be imagined using traditional methods, and have contributed to the development of more sophisticated and efficient products.

The Specific Solution Offered by Hitachi High-Tech

MI, the core technology of Hitachi High-Tech's MI Solution, uses AI technology to predict physical properties and derive optimal conditions for manufacturing conditions and material blending ratios based on accumulated experimental data. Consulting support using MI and generative AI embodies the Lumada*1 3.0, which uses the Hitachi Group's domain knowledge and AI technology to transform data into value and resolve issues for customers and society.

*1 Lumada: A collective term for solutions, services, and technologies based on Hitachi's advanced digital technologies for creating value from customers' data accelerating digital innovation.

(1) Provision of a material data analysis environment
They used Hitachi High-Tech's MI technology to analyze past study data for experimental candidates that can be expected to have the desired properties for development areas such as the anti-rust materials developed by NOF over many years. This led to a more than 50% reduction in costs related to the number of experiments and time required for specific research topics. It also led to new discoveries, which were difficult to achieve with conventional methods, demonstrating the effectiveness of data-driven development and contributing to the advancement of research and development.

(2) Consulting support through customer success
Hitachi High-Tech directly provides customer support by data scientists and other people working on customer success at Hitachi High-Tech. This has enabled NOF to smoothly advance their use of MI even without in-house MI and data analysis experts. Also, by conducting thorough hearings with Hitachi High-Tech personnel, they were able to identify real issues in research and development work and propose appropriate approaches to resolve them, thereby improving efficiency and sophistication.

Future Outlook

Hitachi High-Tech has been providing materials development solutions to a variety of domestic and overseas customers since 2021, focusing on materials and chemical manufacturers. NOF also has group companies overseas, and they are aiming to use MI technology at their overseas offices to further create value globally and increase adoption. The two companies will continue to work together to support the overseas expansion of NOF's use of MI technology, utilizing Hitachi High-Tech's expertise from providing solutions to a large number of customers. In addition, we will continue offering proposals and promoting collaborations aimed at improved efficiency and sophistication, such as further automation of research and development work, through seamless collaboration between MI and data generated from analysis equipment provided by Hitachi High-Tech, and through the use of AI technology and Hitachi Group assets.

Going forward, Hitachi High-Tech will continue leveraging our capabilities of global frontline functions, domain knowledge, points of contact and technological capabilities to create solutions and business models that lead to solutions stemming from all forms of social issues, and to contribute to market growth in the industrial and social infrastructure fields.

Related Links

MI Case study (NOF Metal Coatings)
About MI Solutions

About Hitachi High-Tech
Hitachi High-Tech provides cutting-edge technologies, products and services to society and customers with its corporate vision of "Changing the World and Future with the Power of Knowledge" to contribute to a sustainable global environment, healthy, safe and secure lives, and the sustained development of science and industry. We manufacture and sell clinical analyzers, biotechnology products and radiation therapy systems in the healthcare field, semiconductor manufacturing and inspection equipment in the semiconductor field, as well as analytical systems and electron microscopes used in environmental fields and materials research. We are also engaged in a wide range of business areas globally, providing high added-value solutions in battery, communication infrastructure, railway inspection, digital and other industrial and social infrastructure fields. We provide solutions through a deeper understanding of the issues facing society and our customers to contribute to realizing a sustainable society. The company's consolidated revenues for FY2024 were approx. JPY 756.5 billion.
For further information, visit https://www.hitachi-hightech.com/global/en/

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