

Connecting On-site Expertise to the Future:

A Company-wide Effort to Foster Technological and Knowledge Foundations

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Passing Down Expert Welding Skills: Building a Knowledge Transfer System for the Future

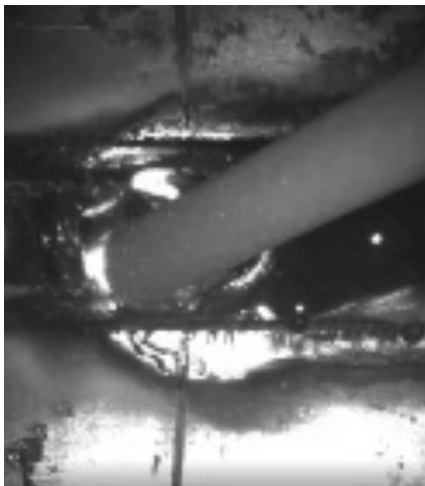
Inspired by the artwork AI-Mural, presented by ima's CEO Miura at Media Ambition Tokyo in 2019, this project was launched in collaboration with President Nakamura and the Technology Development Division under a shared vision:

“Could the latest technologies enable the transmission of expert craftsmanship?”

The initiative focuses on how to preserve and pass down the expert welding techniques accumulated on-site over the years. Since expert welders' movements and decisions are often driven by intuition and experience, these skills have traditionally been considered very difficult to standardize or transfer.

In this project, the welding process was broken down into finer components, and elements that skilled welders pay close attention to — such as the behavior of the molten pool and the condition of the slag — were precisely measured using specialized high-sensitivity cameras, optical filters, and current/voltage sensors. The resulting data was recorded and analyzed, creating a system to capture and quantify tacit knowledge.

Through this approach, previously individual-dependent techniques were made measurable, paving a new path for the transmission of advanced skills.



Development of an AI-Powered Skill Training System

Following the creation of a platform for recording and analyzing expert-dependent techniques, we supported the design of an AI-based training system.

By analyzing the collected skill data, the AI can automatically assess and visualize a worker's movements and proficiency level. This enables the delivery of individualized feedback using both video and quantitative data, capturing subtle nuances that are often lost in traditional instruction.

Trainees can clearly see the differences between their performance and that of experienced professionals, helping them visually grasp their skill levels and areas for improvement — ultimately promoting more proactive learning.

As a result, the system we designed has been highly praised on-site for its ability to enhance both the quality and speed of skill transmission, representing a groundbreaking foundation for next-generation training.

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Keywords | AI × Succession of Craftsmanship, DX



Toward a System for Sharing and Developing Skills Across the Entire Organization

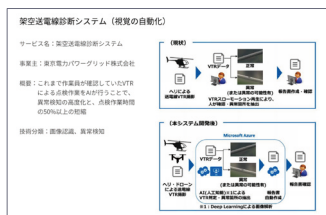
We have continued to support Sankyu in building a framework that enables skills to be shared and utilized across the entire company.

During the COVID-19 stay-at-home period, we conducted online lectures on the theme of “AI × the Field”. Over 150 employees participated regularly, and we observed a strong sense of self-directed learning emerge — marking the beginning of a company-wide culture of technological engagement.

In collaboration with the Digital Technology Promotion Department, we also worked to activate the company’s internal video knowledge portal. By providing end-to-end support — from planning and scripting to filming and editing — the resulting videos achieved the highest view counts in the portal’s history. The number of portal subscribers increased sixfold, dramatically accelerating knowledge sharing within the company.

As these initiatives become embedded in daily operations, the on-site expertise is no longer confined to any single department. Instead, it is expected to spread throughout the organization, gradually and sustainably raising the technical capabilities of the company as a whole.

Deliverables



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