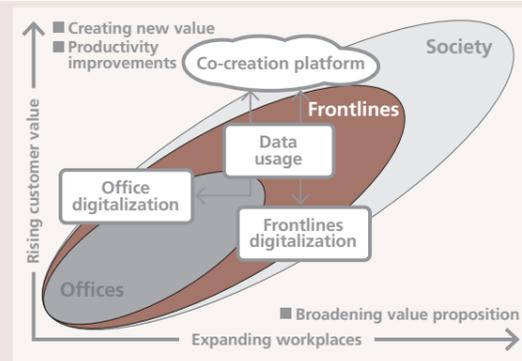


RIS RICOH Industrial Solutions



Business unit role

We enhance customer productivity by digitalizing customer workplaces in the manufacturing and logistics sectors. We create new value by delivering total solutions that incorporate utilization of data.



Message from Business Unit President

RICOH Industrial Solutions' five businesses all derive from the company's core technologies. The Industrial Media Solutions business uses Ricoh's chemical formulation and coating technology for diazo photosensitive paper. The Precision Components business applies Ricoh's precision processing technology in watches. The Industrial Equipment business utilizes Ricoh's MFPs production technology. The Electronics business harnesses Ricoh's MFPs electrical circuit board design technology. The Optical business leverages Ricoh's camera optics technology.

Each business pursues two strategies under the 20th MTP. One is to expand growth in targeted segments, reinforcing the management structure to maximize earnings. The other is to create digital services that deliver new customer value.

We will mobilize the Ricoh Group's industrial business resources to take on the challenges of digital transformation. We will also integrate Industrial Media Solutions and the other four industrial product businesses to make them key contributors to the Ricoh Group. We will create new digital services by taking advantage of cutting-edge technologies beyond the scope of these five businesses.

We will resolve issues by providing total solutions that integrate media, hardware, and systems while maintaining close connections with customer production sites, delivering fulfillment through work for them and ourselves alike. We will keep pushing forward in this direction with the firm belief that it will enable us to achieve continuous growth.



Yasutomo Mori
President of RICOH Industrial Solutions Business Unit

CASE STUDY 01

In-line high-speed printing solutions to materialize variable information printing RICOH FC-LDA Printer 500

The RICOH FC-LDA Printer 500 is a high-speed printing solution for production processes. We developed it by drawing on the Group's strengths in optical and thermal printing technologies. Its 192 lasers modulate independently at high speeds to print variable information on-demand at up to 300 meters per minute, a world record for such platforms (source: Ricoh research as of June 13, 2022). We have thus improved print efficiency for food, consumer goods, and other mass-



Serial numbers and QR codes* are printed on the back of the shrink labels for bottles of Kao Healthya Green Tea Alpha and Healthya Green Tea Umami Luxury Tailoring

produced offerings while providing variable printing that can change printing content to cater to different customer needs.

Fuji Seal, Inc. was the first company to commercially apply this solution, using it to print unique serial numbers and QR codes* for giveaway entries on the backs of shrink labels on Kao Corporation's Healthya beverages in plastic bottle

packaging. This enables Kao to obtain the detailed data needed to serve consumers better. It also helps Kao to innovatively reduce its use of flashy plastic stickers in keeping with its ESG strategy.

By assigning individual product IDs through variable printing, companies can enhance traceability and determine authenticity to bolster food and product safety. They can also leverage this printing for digital marketing, collect more detailed consumer purchasing data, and digitalize processes in the daily necessities, food manufacturing, and retailing sectors. We also take on variable printing challenges for various packaging materials to match customer demands. This allows the acquisition and analysis of detailed data from variable information at many sites. Ricoh will continue exploring ways to add more value to digital services to meet customer needs.

The RICOH FC-LDA Printer 500 won an Encouragement Award in the 14th Laser Society of Japan Industry Award for 2022 for contributing to industrial progress in Japan through laser technology.



* QR Code is a registered trademark of Denso Wave Incorporated



Combining the Ricoh Group's proprietary thermal technology and thermal ink enabled us to offer a technology that can do much to resolve environmental issues. We will apply this technology to traceability and digital marketing and cultivate services that enable customers to adopt digital processes at their work sites.

Nobuyuki Arai
DS Business Development Group, SDGs Business Office, Industrial Media Solutions Marketing Center RICOH Industrial Solutions Business Unit

CASE STUDY 02

Helping digitalization of vehicle exterior inspection sites Vehicle Exterior Inspection Equipment

Our proprietary image capture and processing techniques incorporating time correlation technology have made it possible to automate the inspections of objects with gloss finishes. This process has traditionally been notoriously difficult. Our automatic inspection equipment acquires digital data to enhance product traceability and swiftly addresses the causes of defects. Adopting digital processes at manufacturing sites eliminates two key issues with visual inspection by people. One is differences in inspector skills. Another is the unintentional changes in standards due to the passage of time or fatigue. Digital processes help alleviate inspection process workloads and labor shortages while ensuring consistent quality worldwide.

We are jointly developing the vehicle exterior inspection system with a leading Japanese automaker. This will enable a broader range of inspections by combining our expertise in conventional inspection equipment and automated equipment design technology cultivated over the past half century. The

system will be able to capture images when it, or the target vehicle, is moving for far shorter inspection times than with stationary setups.

The inspection results can be stored as digital data in the form of images and information obtained from them (defect locations, sizes, etc.), enabling the digitalization of the work site at the same time that the equipment is deployed. As well as visualizing facilities operations and quality, we are building digital services that identify defect causes by feeding back inspection results to upstream processes. This will contribute to better production efficiency through process improvements.

We also look to expand our vehicle exterior inspection equipment business to overseas markets to achieve business growth.



Vehicle exterior inspection example