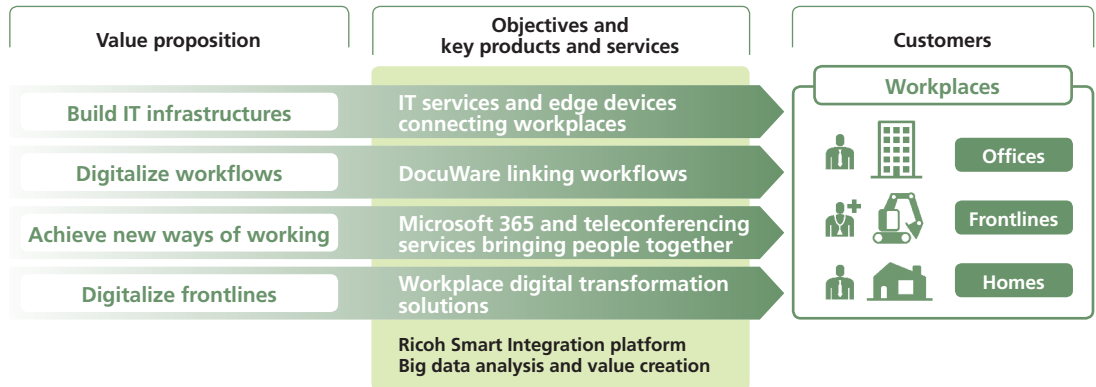# Emergency Response and Gearing Up:
Transformation to a Digital Services Company

Delivering value to customers through digital services

Ricoh seeks to become a digital services company to help working people become more creative and change workplaces through its offerings. We build workplace IT infrastructures and materialize new work practices through services that digitalize and link workflows.

This approach enhances customer output quality and quantity and is part of our commitment to Empowering Digital Workplaces, we seek to bring people, offices and frontlines together to transform work and materialize a sustainable economy.

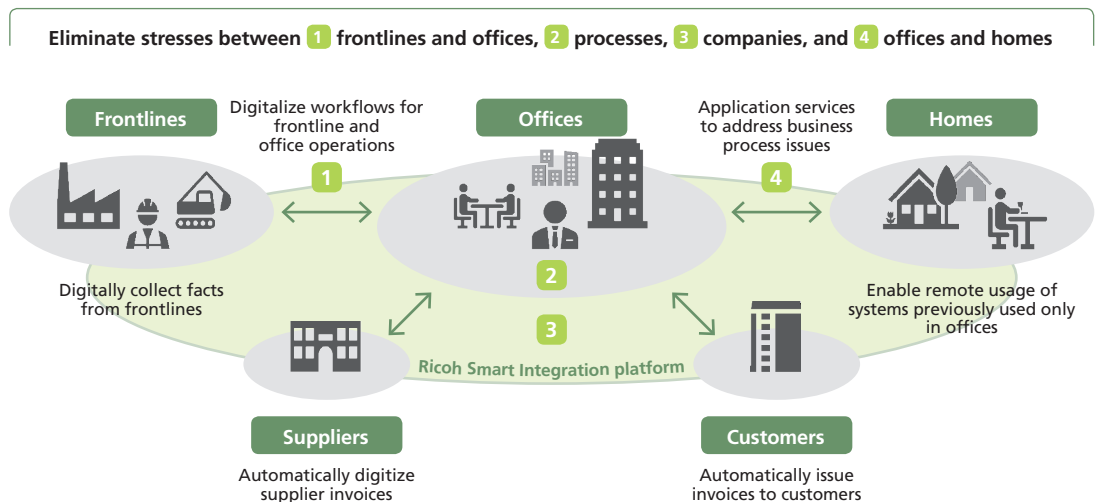| Value proposition	Objectives and key products and services	Customers
Build IT infrastructures	IT services and edge devices connecting workplaces	Workplaces
Digitalize workflows	DocuWare linking workflows	Offices
Achieve new ways of working	Microsoft 365 and teleconferencing services bringing people together	Frontlines
Digitalize frontlines	Workplace digital transformation solutions	Homes
	Ricoh Smart Integration platform Big data analysis and value creation	

The significance of digitalizing workplaces

The pandemic has highlighted a range of workplace issues and stresses. Working from home became necessary to prudently distance people from each other. However, many companies found themselves unable to promptly create environments that enabled employees to work as they would in offices. There were also instances where specific staff would have to travel to offices solely to pick up and process paper invoices and statements sent there. Some jobs require workers to be on the frontlines, such as to escort people around properties or ensure progress at construction sites.

We believe that digital technologies can resolve such issues. Digitalizing and connecting homes, offices, frontlines, business partners, and customer workplaces make it possible to automate processes, work remotely, or perform tasks with fewer people. We accordingly seek to eliminate stress between workplaces and businesses.

Eliminate stresses between **1** **frontlines and offices,** **2** **processes,** **3** **companies, and** **4** **offices and homes**

Frontlines — Digitalize workflows for frontline and office operations — Offices — Application services to address business process issues — Homes

Digitally collect facts from frontlines

Enable remote usage of systems previously used only in offices

Ricoh Smart Integration platform

Suppliers — Automatically digitize supplier invoices

Customers — Automatically issue invoices to customers

Our strengths for becoming a digital services company

By combining the capabilities we have acquired to strengthening our Office Services business with the assets we have cultivated as an office equipment manufacturer, we will turn it into a strength as a digital services company.

One key strength is our 1.4 million worldwide printing customer base. Working directly with customers gives us a "last mile" edge over other platforms and leading system integrators to deliver new services that customers need. We stay close to our customers through the 11,000 field service engineers who maintain our equipment. We resolve customer issues through our 16,000 digital experts, from software developers to systems engineers. We are collaborating with roughly 4,000 global part-ners to become a digital services company.

Manufacturing edge devices for digital services is also critical, and we will continue manufacturing world-class hardware.

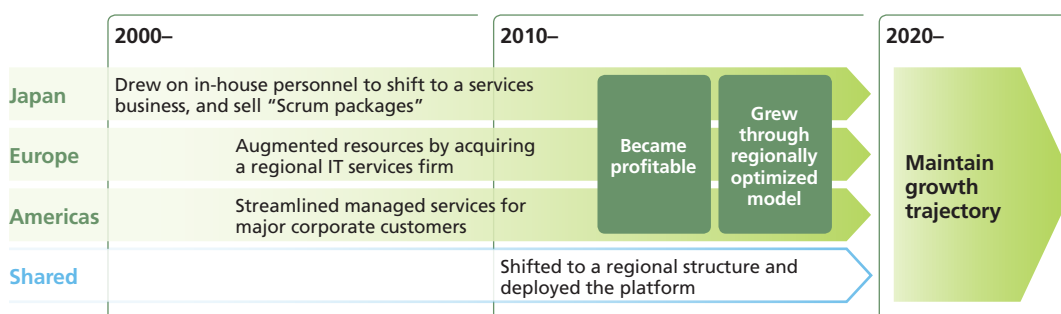| Our competitive edge |
|---|
| **Customer base (office printing)**
● Corporate customers: 1.4 million
● Devices in field: 4 million (direct only) |
| **Widespread customer contacts**
● Field technicians: 11,000 |
| **Digital professionals**
● 16,000 |
| **Optics, materials, image processing, and other core technologies** |
| **IT partners globally**
● 4,000 |

Expanding Office Services business

We look to further expand our Office Services busi-ness by selling packages that help customers set up teleworking to respond to the pandemic.

Our many decades of working closely with small and medium-sized enterprises underpin our solid performance in this area. Japan is our Office Services business's largest market. Over almost 30 years of cultivating that business, we have provided a wide range of products and services, including packaged services, primarily for such enterprises. Our superior maintenance services network is growing as a cus-tomer-centric human infrastructure that far exceeds our competitors.

Customers expected services for free in the past.

Mindsets have changed over the past few years, as we have cultivated the acceptance of paid services. The normalization of payment for appropriate ser-vices has enabled us to recoup fixed costs and enhanced profitability, thereby building a formidable competitive position.

We are also deploying our customer-centric ser-vices model for small and medium-sized enterprises in key international markets. We are not merely replicating our domestic business model, we respect national and regional market characteristics and customer trends and have acquired or allied with local services providers to expand our capabilities and drive growth.

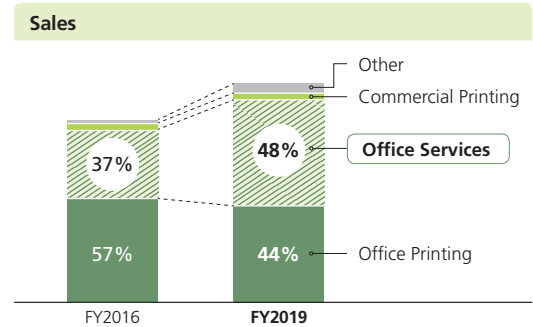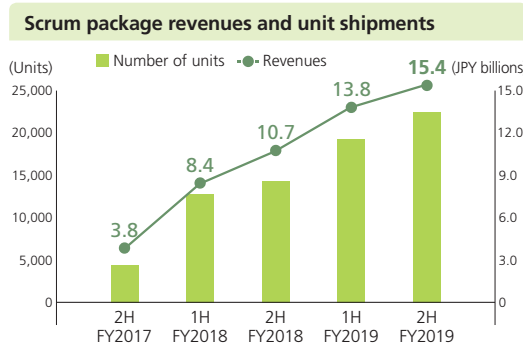|	2000–	2010–	2020–
Japan	Drew on in-house personnel to shift to a services business, and sell "Scrum packages"	Became profitable / Grew through regionally optimized model	Maintain growth trajectory
Europe	Augmented resources by acquiring a regional IT services firm		
Americas	Streamlined managed services for major corporate customers		
Shared		Shifted to a regional structure and deployed the platform	

Providing digital services to customers

Initiatives in Japan

Sales of business solutions-based Office Services exceeding Office Printing revenues

Our Scrum packages have become popular among small and medium-sized enterprises in Japan. These offerings integrate a range of applications and Ricoh products to deliver solutions for three common tasks across seven sectors, including construction,

manufacturing, and healthcare. Revenues and unit shipments have soared since fiscal 2017.

Domestic Office Services business sales consequently outstripped those of the Office Printing business in fiscal 2019.

Scrum package revenues and unit shipments

(Units) — Number of units -●- Revenues (JPY billions)

3.8 / 8.4 / 10.7 / 13.8 / 15.4

2H FY2017 | 1H FY2018 | 2H FY2018 | 1H FY2019 | 2H FY2019

Sales

Other / Commercial Printing / **Office Services** / Office Printing

FY2016: 37% / 57%
FY2019: 48% / 44%

Offering RICOH Digital Processing Service as an industry business solution

In June 2020, we launched the RICOH Digital Processing Service as a solutions lineup to improve operational efficiency and productivity in today's challenging business climate for small and medium-sized enterprises.

This service employs Scrum packages, assets, and other offerings as integrated solutions that support new workstyles by digitizing sector- and task-specific

workflows. We have rolled out more than 100 packages for back-office and other common tasks in the construction, real estate, manufacturing, welfare, and eldercare sectors. We enhance productivity for all workplaces, whether they be offices, homes, or frontline sites, through labor-saving automation.

Initiatives in Europe

Catering to diverse needs through work together, anywhere

We are bolstering our IT services capabilities in Europe. In April 2020, as a response to the COVID-19 pandemic, we brought out work together, anywhere packages. ❯**1**

Nine key packages are currently available, including remote work devices and teleconferencing, which has received high praise among customers for ease in setup. Many packages draw on the Network Operation Centre, which provides shared services.
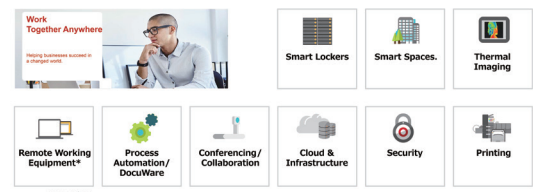
Refer to our website

1 Work together, anywhere Helping businesses succeed in a changed world www.ricoh-europe.com/campaigns/work-together
Intelligent Business Platform Unlock the value of your data from a secured, easy-to-use cloud-based portal
www.ricoh-usa.com/en/services-and-solutions/enterprise-content-management-workflow-services/intelligent-business-platform

Remote work at Ricoh

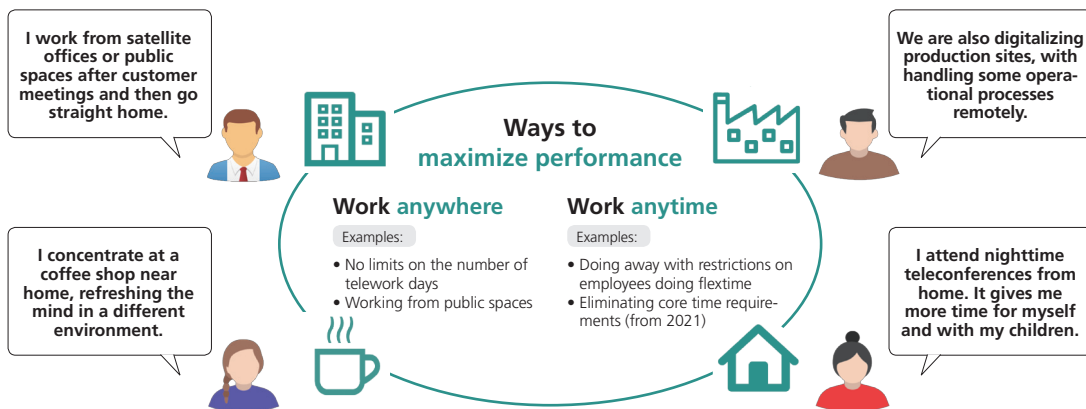## Standardizing teleworking and other remote work

The Ricoh Group has progressed with initiatives to fully adopt teleworking to help stem the spread of COVID-19 infections. In July 2020, we surveyed Ricoh's employees about changes in productivity, lifestyle, and health. More than 80% of respondents noted that they had maintained or improved their productivity even when working from home. High proportions of employees reported positive lifestyle and health results.

We made remote working from the home standard during these challenging times based on the survey. As part of our efforts to change work practices, we look to enhance productivity, lifestyles, and health by empowering our employees to work when and where they see fit. We aim to materialize our Fulfillment through Work ethos as we progress toward our centennial in 2036.

As well as issuing new work practice guidelines for domestic Group employees, we have gradually reformed our personnel system. For example, we lifted restrictions on who could telework, and the number of days employees could work remotely. We incorporated employee feedback to establish optimal office attendance rates by job category and implement practices that flexibly combine working from offices or remote. The policy is based on job requirements instead of a uniform standard companywide.

We continue to promote new work practices, accelerate internal digital transformation, provide customers with the know-how they have cultivated through practice, and support the shift to new ways of working in response to the new normal.

I work from satellite offices or public spaces after customer meetings and then go straight home.

We are also digitalizing production sites, with handling some operational processes remotely.

Ways to maximize performance

Work anywhere

Examples:
- No limits on the number of telework days
- Working from public spaces

Work anytime

Examples:
- Doing away with restrictions on employees doing flextime
- Eliminating core time requirements (from 2021)

I concentrate at a coffee shop near home, refreshing the mind in a different environment.

I attend nighttime teleconferences from home. It gives me more time for myself and with my children.

Running plant operations remotely

The Atsugi Plant in Kanagawa Prefecture has deployed digital manufacturing extensively. It has consequently automated some production lines, including using robotics. It also now digitally records operation statuses, process parts inventories, and automated guided vehicles' performances. Plant personnel checks and analyzes this data in real time from home. They predict equipment irregularities swiftly and monitor some operations from afar, sending instructions to on-site colleagues.

With this setup in place, more than 30% of employees now work from home, primarily overseeing indirect tasks to maintain site quality and operations. While expanding remote work, the plant takes advantage of freedom from distance constraints to strengthen collaboration with production sites elsewhere in Japan and abroad.

Remotely monitoring plant operations from home and instructing colleague at a plant

Helping customers transition to digital processes by developing new technologies and deploying them in-house
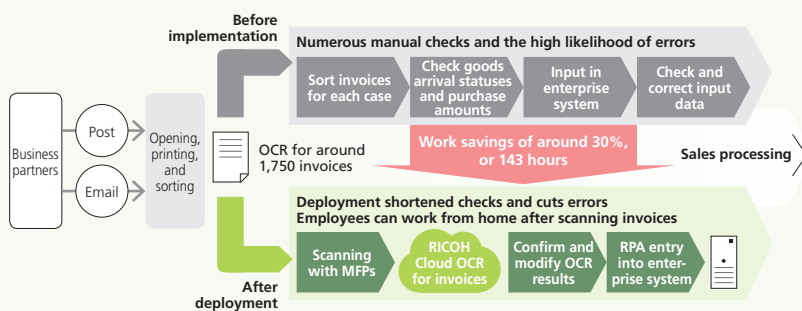
Enhancing business processes through digital transformation

We are driving a companywide digital transformation. From 2018, we embarked on a digital revolution encompassing all employees as part of our fundamental management policies. We have rolled our business process reforms that draw on robotic process automation (RPA) and artificial intelligence (AI) for indirect and all other operations, including development and production sites. The goal is not merely to automate tasks but also to create a structure where all workers can continuously improve business processes.

By digitally acquiring data, visualizing business processes, and analyzing issues, quality control personnel leverage RPA for various tasks, including measuring the power consumption of MFPs, printers, and other equipment, significantly alleviating the employee workloads. In back offices, we are automating operations by combining RPA with AI and optical character recognition (OCR). Production sites are using AI technologies to inspect parts exteriors and in other applications. Our employees will ultimately become fully adept at using digital technology to implement new work approaches that deliver the optimal output to customers. ❯**1**

Using AI and RPA to process invoices at month-end

Before implementation

Numerous manual checks and the high likelihood of errors

Sort invoices for each case | Check goods arrival statuses and purchase amounts | Input in enterprise system | Check and correct input data

Business partners — Post / Email → Opening, printing, and sorting

OCR for around 1,750 invoices

Work savings of around 30%, or 143 hours

Sales processing

Deployment shortened checks and cuts errors
Employees can work from home after scanning invoices

Scanning with MFPs | RICOH Cloud OCR for invoices | Confirm and modify OCR results | RPA entry into enterprise system

After deployment

Invoice processing was mostly done at month-end, consuming much time because of the need to handle and check printed items manually. Using MFPs, AI, and RPA has shortened this business process: AI incorporating proprietary form analysis and automated image processing technology identifies and digitizes invoice information. RPA can automate data input and confirmation checks. This setup has cut monthly hours for this process by around 30% and made it possible to process information at home or elsewhere remotely, contributing to workstyle reforms.

Driving workplace innovations through business and technologies

Seiji Sakata
Corporate Executive Vice President and Chief Technology Officer

i

1 Digital twin
A technology that reproduces information from physical spaces in real-time in cyberspace and uses simulations and other tools to predict real-world changes.

The Ricoh Group seeks to reform workplaces through innovation and sustainably improve corporate value. We must accordingly manage two key elements. These are operational perspectives for developing existing businesses and technical perspectives for creating innovative businesses based on insights into tomorrow. While the Office Printing business is largely profitable, our growth depends heavily on reinforcing our Office Services prowess. We will bolster our capabilities to make this business area pivotal, not just for offices. We will also resolve overall workplace issues, including at homes and on the frontlines, and resolve social issues through our ESG, SDG, and other commitments.

Our ability to swiftly deliver digital services that resolve issues is dependent on identifying the essential regional and business needs of customers and bring together services and products that match those requirements. We will build systems for developers to maintain close ties with customers and create services for them. At the same time, we will develop common platforms for materializing services.

The technical strategy underpinning our medium-term growth is to employ a digital twin ❯**1** that fosters evolutions in workplace practices and digital printing for a mass customization era to drive human-centric digitization. Thus, we will make AI and fifth-generation (5G) mobile telecommunications technologies top priorities and cultivate people who can employ digital technology in various situations.

🖥 **Refer to our website**

1 Image Recognition and Analysis Technology for Visual Inspection www.ricoh.com/technology/tech/073_imagerecognition

Developing AI to deliver top-class support to customers

In 2017, we established the Applied AI Research Center to incorporate AI in products and transform internal business processes. In October 2018, we set up an companywide training school that nurtures high-level data scientists and fosters data usage on the frontlines. Service developers incorporate AI in work processes, drawing on specialist AI organizations where needed to further AI use in services.

AI is progressing at lightning speed through the use of open tools. It is a very specialized field, as world speed and performance records are continually broken. Optimizing AI performance and resolving issues, thus necessitate drawing on the capabilities of AI itself and collecting masses of high-quality data that match objectives and enable AI to learn.

Edge devices for collecting data are also essential to improve services. Ricoh uses proprietary imaging, vibration, and other sensing technologies to obtain data previously out of reach. An excellent example of this is our road surface monitoring service, which uses proprietary stereo cameras to obtain distance information and improves data quality by measuring road surface depths that would be otherwise hard to determine visually. We will use data we have acquired with optimized AI technology to provide customer value in various workplaces. ❯ **2**

Optimal Support for Your Work Using AI
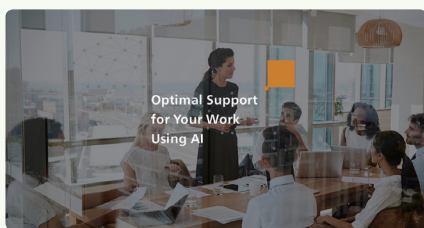
Optimizing worker support with AI

We will leverage our digital services to help workers overcome challenges, thus providing new value to workplaces. Here, we present service development approaches that draw on AI as digital brains and showcase human resources and systems capabilities.
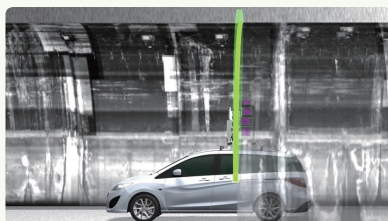
🖥 **www.ricoh.com/technology/ai**

AI technologies supporting digital services

Tunnel monitoring system ❯ **3**

The aging of many tunnels has thrust safety management into the spotlight as a social issue. We contribute to social infrastructure safety by filming tunnel wall surfaces using multiple unique depth-of-field cameras* and use AI to produce documentation.
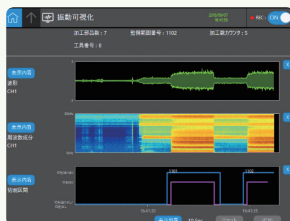
*Cameras enlarge the range in which captured images seem in focus without sacrificing resolution or brightness

**Machine tool vibration-imaging technology** ❯ **4**

In manufacturing, efforts are progressing to visualize processes and enhance productivity. Machine vibrations offer numerous insights into process states. We use special sensors to obtain vibrations from machine tools and then analyze them using AI. We improve productivity and production quality by presenting process states in real-time.

Image enhancement technology for 360° images ❯ **5**

Virtual property tours have become increasingly popular in recent years. The COVID-19 pandemic has made them even more ubiquitous in order to prevent the spread of infections. We have further enhanced the resolution and quality of RICOH THETA 360° camera images by training the AI engine using images from our high-quality GR compact digital camera, thereby imploving the attractiveness and impact of virtual tours.

Walls inside tunnels

Vibration visualization system display
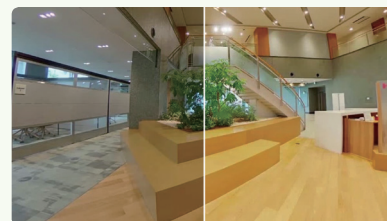
Original (left) and enhanced images (right)

🖥 **Refer to our website**

2 **Making infrastructure safer with efficient road surface inspection technology**
www.ricoh.com/about/empowering-digital-workplaces/initiatives/efficient-road-surface-monitoring/
3 **Tunnel Monitoring System** www.ricoh.com/technology/tech/087_tunnel_monitoring
4 **Vibration Visualization for Machine Tools** www.ricoh.com/technology/institute/research/tech_Vibration_Visualization
5 **AI-Based Image Enhancement Technology for 360-degree Images** www.ricoh.com/technology/tech/088_image_enhancement