

White
Paper

New Collaboration Strengthens Organization -Case studies: changing work style and discovery of new values-

How are fast-moving ICTs (Information and Communication Technologies) applied in a company or an organization? Are they perceived as easy to use and secure? This white paper introduces case studies where the introduction of a new Ricoh collaboration tool, easy to use and secure, not only saved cost and time, but also significantly changed the qualities of business and service. Customers who adopted Ricoh's ICT tool discovered new value in reforming communications for their organizations, and further, some felt improvement in their individual quality of life.

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1. Improved individual productivity by ICT, and its deployment to business

The evolution of wireless communication technology and mobile telephone networks, combined with the diffusion of small notebook PCs, tablet PCs and smart phones over the past several years, have made it possible to exploit information by accessing the Internet on the go. Costs wasted when returning to the office just to pick up documents or to give a report can now be significantly reduced. "Going directly to the

work site and returning straight home" became possible, thereby improving the flexibility and productivity of individuals in the workplace. On the other hand, how are such ICTs (information and communication technologies) applied in company or organizational groups and teams? Are they really easy to use and worry free?



You may also see the scene confirming information with mobile devices often nowadays

Recently, opportunities to collaborate within a group or team beyond the area or organization are also increasing. Internet based video communication services may be used for such applications. More than a few people are using such services from home to communicate with family or acquaintances in diverse places. However, not everyone can master such services. The expression "I can use it" or "I'm using it" is not the same as: "everyone in the company can use it easily and comfortably." To be applicable in business, a tool or service must be easy to use and worry free for people even without ICT skills. Tools that require continual support are of little use and may not show a positive return on investment.

Security is also indispensable for business. Might there be hidden traps in using devices and services for private matters concurrently with important business activities? We must carefully examine whether confidence and security is fully assured with a best effort communication service. Beyond that, services today must be securely accessible from remote locations.

The following chapter introduces three case studies in which the introduction of a



secure, easy to use new collaboration tool not only reduced cost and time, but also significantly changed the qualities of business and service; it even led to improved company and organization value. This was made possible by timely responses and collaboration beyond the location constraints of an organization, which had been heretofore not possible. Let's look at how the quality and quantity of communication were improved by skillfully exploiting the potential of communication or tools brought about by progress in ICT technology. Let's also look at the value they brought to the company or organization.

2. Case studies of new collaboration using Ricoh ICT tool

In the following three case studies, new collaboration is achieved using one or a combination of the following ICT tools. (See the column described later for an outline of each product/service.)

- RICOH Unified Communication System (a video conference system)
- RICOH Interactive Whiteboard (an electronic white board capable of bidirectional connection)
- RICOH Smart Presenter (a paperless conference solution using tablet PC)

2.1 [Case study 1: Remote global video conference meeting in day-to-day business]

The first case example is a global application example at Coor Service Management (hereinafter called Coor), the leading service provider in Scandinavia.

<Background>

Coor provides the market's broadest offering with over 100 services, with about 7,000 employees. Coor has many offices spread throughout Nordic countries.

Maintaining regular face-to-face contact and meeting among staff members based



in different offices or countries is essential, but staff had to make frequent business trips around Nordic countries to hold meetings, which brought high travel expenses and high stress levels. In exploring new ways of working, Coor was looking for a solution that would facilitate face-to-face communication without the need for travel.

<Reasons for introducing Ricoh ICT tool>

Consulting with Coor, Ricoh proposed a solution using the RICOH Unified Communication System (RICOH UCS) P3000 (see the column on page 4), a portable video conferencing system. Since RICOH UCS can enable a virtual face-to-face meeting just by connecting to the internet, it was not necessary to prepare a special environment for video conferencing beforehand such as setting dedicated lines in remote offices.

Moreover, Ricoh could provide the RICOH UCS with a Pay As You Go Service, which requires payment only for what the users actually use.

The RICOH UCS was selected because Ricoh's solution has eliminated the need for upfront investment, also reducing travel time and expenditure.

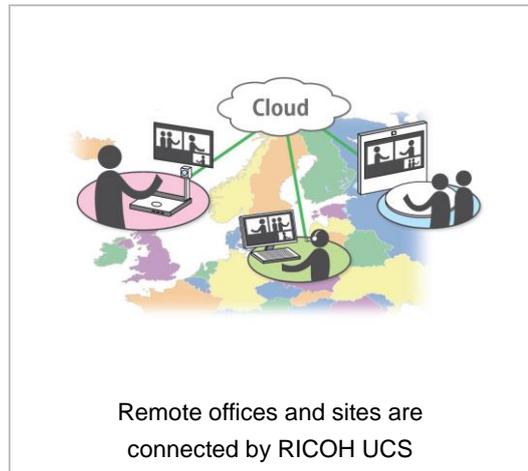
Needless to say, as the conduit to a video conferencing system, the system had to be stable without connection outage due to network traffic, secure for handling confidential business matters, and used easily and intuitively, all of which the RICOH UCS can provide.

< Benefits of adoption >

There are static video conferencing facilities in the meeting rooms at Coor's Helsinki, Stockholm, Oslo and Copenhagen offices. About 70 units of RICOH UCS P3000, which is portable, were introduced and mainly used in the regional offices spread throughout Nordic countries. Employees who cannot access the static or portable video conferencing facilities may join a meeting using PC with the installation of RICOH UCS Apps. Therefore, all employees can access the video conferencing system, no matter where they are based.



Now, the P3000 is used in day-to-day business, making it possible for staff throughout the Nordic countries to have face-to-face meetings without the need to travel. Most meetings that required traveling are now conducted using the virtual meeting rooms. In 18 months since the RICOH UCS was introduced, Coor has saved 325 days of travelling time and significantly reduced travel expenditure. There is a substantial reduction in travel expenditure, more than the cost of usage charged via Pay As You Go Service.



Column: RICOH Unified Communication System (RICOH UCS)

RICOH UCS is a tool equipped with a camera and a microphone that makes remote collaboration possible. RICOH UCS can exchange images and sound via the Internet; it easily enables remote communications like a video conference system.

The RICOH UCS P3500 is connected with a display or projector to display the partner's image. It is also possible to share a PC display connected with RICOH UCS with your partner (screen sharing function), or to show real objects, such as components as with a document camera.

P3500, released in Oct. 2014, supersedes RICOH UCS P3000 (now discontinued), with faster performance and even more features.



[The features]

- Operation is easy → Connected as easily as a telephone.
- Portable → Usable wherever the Internet is available.
- Perfect security → Security is ensured at the data center, network, and terminal levels.
- Image is not easily interrupted → Even if wireless network conditions fluctuate, transmission and receipt of images remains stable.

The RICOH UCS P1000 is a display integral type with a built-in battery. RICOH UCS is connectable from a PC, tablet computer, or even a smartphone with the installation of RICOH UCS Apps.



[RICOH UCS product information] <http://www.ricoh.com/ucs/>



What has RICOH UCS yielded?

<Comments of the Coor IT manager>

" Video conferencing was a natural step for us.

Ricoh's solution turned out better than we expected, actually. We had great support during the whole period. If we need education, no problem by onsite or visual conferencing. We have used the system much more than we anticipated, and usage is still climbing.

Further, the introduction of RICOH UCS not only saved travel expenses but actually saved lifetime for employees. They get good life quality. They look quite happy that they don't have to travel so much. They can spend time with their families and local colleagues."

It seems that beyond the substantial reduction in travel time and expenditure, which was an expected result, there are unexpected effects: increased contact with employees and improvement in the quality of life of the employees. Because all employees can use the video conferencing system, the system is easy-to-use, and support during usage is provided, face-to-face communication among employees has increased. The RICOH UCS also enhanced the quality of life of individual employees, which is important for managing the organization in the long term.



Video conference meeting among employees and Coor's partner based in 3 offices. One is using the RICOH UCS P3000 (left). He sees the image of other members (right) who are using static video conferencing facility (left in the right image) and PC with RICOH UCS Apps (right in the right image).



2.2 [Case study 2: Collaboration to bring about decision-making in real time]

The next case study is an application example in-house at SANKOH Co., Ltd. (hereinafter called SANKOH), a manufacturer/seller of gas cocks and joints in Japan.

<Background>

In SANKOH, because the head office with development and marketing divisions is located in Saitama Prefecture while the factory is located in Niigata Prefecture (more than 230km from Saitama), three persons used to travel from the Saitama head office to the Niigata factory once or twice a month to hold regular business/development conferences. Because talking face-to-face is essential, the travel for 3 persons and round-trip time were necessary expenses; but there was also the need to reduce costs. Moreover, there were limitations to the number of staff who could travel on business; there were times when the person in charge couldn't travel to attend, which made that conference no more than going through the motions.

Although e-mail and the telephone are used for everyday communications, many drawing based communications are required in business. Consequently, in the past, drawings were touched up and sent as email attachments to give directions and confirm changes. Specification change requests from a customer to the factory side must be clear so that production drawings are error free. Clear, correct and speedy communication was needed on "how to change which portion of which parts in what way," as in the case of specification changes between the head office and the factory.

<Reasons for introducing Ricoh ICT tool>

With the above background, while examining the introduction of a video conference system to overcome insufficient communication, an article on RICOH UCS and RICOH Interactive Whiteboard (RICOH IWB) (see the column on page 7) attracted SANKOH's attention.

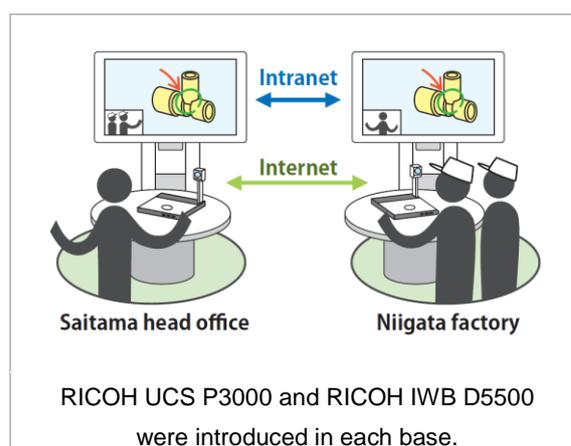
Because the RICOH UCS P3000 was portable, it became possible to exchange opinions by taking it to the factory to confirm equipment circumstances etc.; with this ability, it was expected that conference realism would increase dramatically.

This portability also made it possible to use at the customer site.

Moreover, in product development, speed increases with real-time communication, simultaneously updating and annotating drawings from both sides using the RICOH IWB D5500, projecting the actual item being discussed by the P3000 camera.

<Benefits of adoption>

They introduced one set each of the P3000 and D5500 into the Saitama head office and the Niigata factory. The business/development conference is held in such a way that the persons related to the subject, from marketing divisions and development divisions participate remotely using the P3000, reducing the member to take business trips.



Beyond substantial reduction in business costs, it became possible to hold meetings using the P3000 and D5500 immediately at the product development stage and to make decisions and provide on-the-spot direction. As a result, it led to increased speed in judgment and business. It is said that the on-demand remote meetings, in addition to the regular meetings once or twice per month, made it possible to have timely communications between the head office and the factory.

Which portion of the product should be changed in response to customer requests can be transmitted by pointing on the real object using the P3000. When giving detailed directions, while a blueprint is displayed on the D5500 display, corrections can be annotated on the display directly from both the head office and factory side in real time. This ensures secure transmission of information without misunderstandings on either side.

SANKOH told us they were able to respond promptly to changes in product specifications and design and even shortened delivery time by about one week compared to before. The ability to make annotations and write comments on the

spot in real-time reduced unanswered questions and misunderstandings. This introduced a framework in which all members can be persuaded and agree on the spot, thereby substantially improving efficiency. They realized that, with the conventional method, it was difficult to give directions or to make corrections to detailed parts of the drawing. Efficiency and accuracy were lacking, as was immediacy, when communicating by mail and the telephone.

Further, team members, who previously only learned of decisions after the fact, were now able to participate in conferences, which improved in-house communication efficiency and imparted a sense of inclusion; the transfer of information is also said to have quickened.

Column: RICOH Interactive Whiteboard (RICOH IWB)

RICOH IWB D5510 is a large-sized (55-inch) display device equipped with an electronic pen write-in function. You can directly write a character or figure on the drawing etc. displayed using a finger or a dedicated pen; it can be saved as a PDF file. Even small characters can be smoothly written and scaling is at will. The PDF file can be transmitted by e-mail, saved in USB memory or saved in a folder on the intranet for sharing. Printing is also possible on Ricoh MFPs or printers directly from the D5510.

D5510 can connect up to 20 remote locations together allowing you to share the display via the Intranet.

D5510 supersedes RICOH IWB D5500 (now discontinued), with even more features. Now, the lineup has been expanded to also include the RICOH IWB D2200, D6500 and D8400 and are respectively 22-inch, 65-inch and 84-inch models.



[Features]

- No need to install dedicated software
 - Usable by merely connecting a cable.
- Possible to save as a PDF file and send as e-mail by pressing a button on the screen.
- Screens and annotations can be shared with a remote location in real time.
- It acts in concert also with the Ricoh projector or RICOH UCS.
- Security is also perfect. → It protects against viruses and other threats.

[RICOH IWB product information]

Ricoh Global Website: <http://www.ricoh.com/iwb/>



The customer made the following comments on the benefits obtained by introducing the RICOH UCS P3000 and RICOH IWB D5500 tools.

<Comments of SANKOH Niigata factory manager>

"Introduction of the P3000 reduced the number of business trip members to regular conferences. Younger staff can now participate in conferences freely using the P3000, which seems to be improving their motivation. Participation in the factory quality conference, for which minutes were circulated only in the head office before, is now available to observers, allowing content to be shared immediately. Development speed has increased because drawings are displayed on IWB, with annotations from both the head office and factory in real time; actual articles can be shown on the spot with the P3000 camera.

During installation verification at the head office with the customer, photos taken on the spot are projected immediately on IWB. Annotating specific sizes and points at issue make it possible for the customer to use the photos as subsequent conference materials."

We also received comments from persons in the manufacturing and sales departments:

<Comments of SANKOH Manufacturing Department>

"If you tell someone to 'look at the materials and comment later,' it takes time. But if you ask them to 'connect just for a moment,' transmission is immediate, and business progresses quickly. The fact that it is easy to use is also attractive."

<Comment of SANKOH Sales Department>

"On the head office side, conventionally we only evaluated the final materials. With the introduction of the P3000, however, we can now participate in background discussions, giving us more insight into where things are going, smoothing progress."



Put another way, the introduction of this new tool significantly hastened the progress of information sharing in the company. Gains were not limited to the "reduction of business trip costs," although that was important. We were able to evolve business quickly without mistakes, thereby improving performance.

SANKOH also introduced RICOH UCS Apps at the Saitama head office and the RICOH UCS P1000 at the Niigata factory. They told us that, from now on, they will have their person in charge from the factory participate remotely using RICOH UCS in conferences at the place other than the head office or the factory, at the customer's office for example. Doing so allows questions to be asked and answered on the spot where, in the past, they were brought back as homework to be answered later. Confidence within the company is expected to improve.

2.3 [Case study 3: Paperless Conference Solution for Developing Information Literacy of Students]

The following introduces an example of a challenging information literacy class at the Osaka Jogakuin University and College (hereinafter called Osaka Jogakuin) in Osaka, Japan.

<Background>

Osaka Jogakuin has its roots in the Wilmina Girls School founded by missionaries in 1884, and has achieved an educational environment that carefully develops personality. It is continuing this approach to enrich the teaching and studying environment for every student, applying ICT that enables girls to live rich lives based on their own values in international society. Just as with other universities, it has embraced advanced ICT promptly, including a personal computer environment available to every student, campus wide Wi-Fi®, application of the cloud, distribution of iPad® mobile digital devices to all students, and the application of original electronic teaching materials.

Osaka Jogakuin considers it vital to build a framework that heightens self-expression through classes tailored to active learning. For example, in collecting and analyzing information, students are expected to acquire skills needed to use their own judgment in interpreting the information that overflows the network. In presentations, students also learn to polish communication skills and

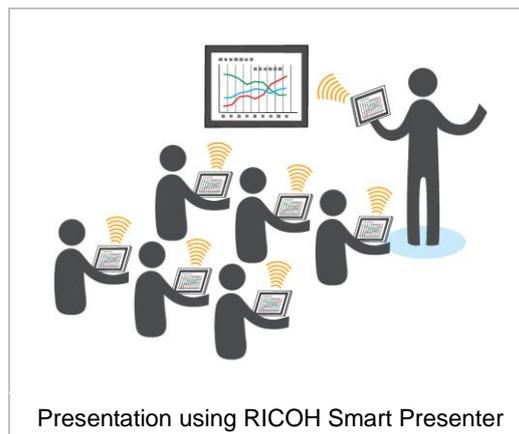


descriptive power. In past configurations, it was difficult to share information with colleagues, and it took time and effort to check something on the Internet using intramural PCs and to prepare presentation materials against tight deadlines. It was hard, it seems, for the students to concentrate on drilling presentation skills.

<Reasons for introducing Ricoh ICT tool>

Smart Campus, advocated by Associate Professor Komatsu of Osaka Jogakuin, is a teaching and learning service to support the individual student's spontaneous learning, and to do it comfortably in a ubiquitous environment comprising the cloud and iPad®. It is also useful for students to prepare presentations. Ricoh has long been helping implement this service.

When iPad® mobile digital devices were introduced in 2012, Ricoh proposed the paperless conference app called RICOH TAMAGO Presenter (which is now the RICOH Smart Presenter). iPad® mobile digital devices (with this app installed) were distributed to students and used by a small seminar unit. To make the system applicable to a greater number of students, however, a server environment was indispensable to be applicable in subjects common to all students. With this background, Osaka Jogakuin introduced the RICOH Conference Center (the fare-paying server version of the RICOH Smart Presenter), a first among Japan's Universities and Junior Colleges. (See the column on the next page.)



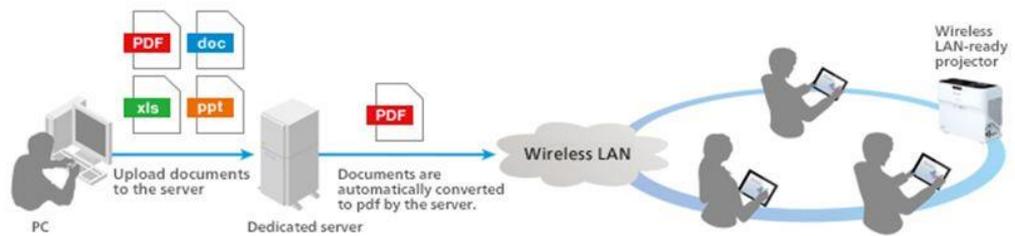
Column: RICOH Smart Presenter

This paperless conference system can eliminate cost, time and effort in printing materials by displaying conference materials on tablets or PC terminals of conference sponsors and individual participants. It is also easy to share presentation materials among the participants.

Sharing mode displays the same screen on the participant's terminal, synched when the presenter turns a page. In private mode the terminal allows the user to browse materials at will, or to page up and down to reconfirm contents. Personal notes can also be entered.

The RICOH Smart Presenter (free copy) is easily used (with no need for a server) to connect up to ten sets.

With a fare-paying RICOH Conference Center (dedicated server), materials uploaded to the dedicated server are converted automatically to PDF. Up to 350 sets can be connected.



RICOH Smart Presenter concept

[The features]

- Operation is intuitive and easy.
- Merely selecting participation starts download of conference materials
- Synchronization of browsed pages of materials; zooming and annotating on a page are possible
- When the RICOH Conference Center is used, operation is possible from iPad®, iPhone®, and Windows® browser alike
- Projection on the Ricoh projector is possible wirelessly
 - It is suited also for presentations in a large hall
- Automatic erasure of materials is also possible at the end of the conference → No need to recover or shred materials
- It is stable even for large-scale use → It has already been used in international conferences*



The scene at the paperless conference by the APEC Traffic Ministers' Meeting

*The large-scale paperless conferences by RICOH Smart Presenter were held in the APEC Traffic Ministers' Meeting (September, 2013), and IMF/World Bank Annual Meeting (October, 2012).

[RICOH Smart Presenter Product information] <http://www.ricoh.com/software/smartpresenter/>



< Benefits of adoption >

The RICOH Smart Presenter is used in research investigation and in comprehending and applying information of the core curriculum applicable to all faculties in information-literacy classes (as of July 2013). We received the following comments from the students who used it in class.

<Comments of Osaka Jogakuin Students>

"I learned how to use RICOH Smart Presenter in class after entering the school; I was surprised at how easily it can be used, even without reading the manual."

"I could share prepared material with friends, and could drill before my actual presentation. I was able to improve by observing everybody's reaction."

Both told us that, because the system is easy to use, allowing preparation and drill of presentation at anytime, anywhere, they could express what they wanted to say satisfactorily and to make their presentations in a way that expresses their individuality. The tools are easy to use, and because the presentation materials are registered as electronic data on the shared server in the Cloud, it became possible to share presentation materials with colleagues in advance; this gave students time to drill their presentations.

Further, the students have dreams of the future, taking advantage of what they learn at Osaka Jogakuin, including smooth communication and self-expression.

Based on how RICOH Smart Presenter was used in the information-literacy class to improve presentation capabilities, Osaka Jogakuin seems to have achieved its original purpose of enabling students to focus on better communication. That is to say, the quality of education provided by Osaka Jogakuin has improved, and the education system of the school has been reformed and strengthened. Beyond that, RICOH Smart Presenter is useful as a tool that supports students' challenging spirit for the future and helps them express themselves confidently.



In addition to lessons, RICOH Smart Presenter is also used for staff meetings at Osaka Jogakuin. Staff members told us that they have been considering, for some time, making subjects to be discussed browsable on iPad® rather than issuing printouts. After the RICOH Smart Presenter was introduced for paperless staff meetings, 16,000 plus pages per year were reduced.

Staff meetings handle personal information and confidential information such as information on students' achievements and materials for an entrance exam in many of the subjects for discussion. In the past, materials had to be collected at the end of the conference for shredding. That is no longer necessary, as the RICOH Smart Presenter doesn't leave information on paper. The fear of leaving behind materials used in conference, and worries about information leakage outside have also diminished. These security safeguards are especially important for educational establishments, where much of the information is confidential.

Moreover, participants are now able to identify subjects for discussion in advance, before attending the conference. In addition to the direct effect of paperless conferences, such as reduced paper printing, distribution, and collection costs, ripple effects such as deepened discussion of contents and shorter conferences were also achieved. All will lead to higher quality education.

<Comments from the president of Osaka Jogakuin>

"It is important to take on new schemes, staying aware of what lesson style will be useful for future students, without being a prisoner of the established educational environment. I am keen to apply leading-edge equipment in education and feel confident that I can count on Ricoh solutions."

3. New Value Provided by Ricoh ICT Tool

In the three case examples above, each client introduced an ICT tool to solve a certain problem: the need to reduce business trip costs; a desire to increase business efficiency; and a desire to enhance students' educational environment. The Ricoh ICT tool solved them all.



But there were other benefits as well: usage of the video conferencing is climbing and contact among employees has increased; young staffs' sense of participation has been improved; students' challenging spirit of the future has been supported; and so on.

In all cases, customers got more than they expected at the beginning. Mastering a user-friendly tool reveals the real value of the tool, which causes people to take a new look at how they are working and what they can provide. It is important to note that customers were able to appreciate the return on investment of ICT tools. As a matter of fact, customers who introduced the Ricoh ICT tool and reformed communications found new value in their strengthened organizations.

Further, there was a case that Ricoh ICT tool not only strengthened organization but helped individual employees to get better quality of life, saving lifetime and providing more time to spend with their families and local colleagues.

4. Ricoh's Efforts to Build a Collaborative Environment

At the Ricoh Group, we are committed to providing excellence to improve the quality of living and to drive sustainability. We will continue providing new value ahead of the competition, responding to changes in technology trends that impact information.

Our efforts toward a world of remote work and collaboration with ever richer information are also accelerating as we move beyond the traditional work style based on documents. While quickly embracing mobile work at our company, we have developed a family of tools one after another and work to support new collaboration. A company target was to provide new products and solutions, combining them to help accelerate our customers' business and strengthen their organization. This white paper introduces a part of those efforts, and shows their value for the customer through case examples.



We contemplate transitions in the business environment, or the evolution of ICT, and continue to provide a collaborative environment where the customer can create new value.



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