

Sustainability Briefing

- Accelerating Both Environmental
Contribution and Business Growth -

Konica Minolta, Inc.

January 20th, 2026





**Konica Minolta's sustainability management
Industry Business growth and sustainability
value creation**

Noriyasu Kuzuhara

Executive Vice President & Executive Officer, Industry Business



**Technological Initiatives Contributing to
Decarbonization and GX**

Toshiya Eguchi

Executive Vice President & Executive Officer, Technology

1

On track to achieve Carbon Minus in FY2025

2

Industry Business shows a significant contribution to avoided CO₂ emissions

3

Progress in initiatives for technologies contributing to decarbonization and GX

Good afternoon. My name is Kuzuhara.

To begin, I would like to highlight three key points that we would like to convey in today's briefing:

1. We are on track to achieve our fiscal 2025 target of achieving Carbon Minus.
2. Our Industry Business is making a particularly significant contribution to avoided CO₂ emissions.
3. Our initiatives and technologies that contribute to decarbonization and GX are steadily progressing.

With that overview, I would now like to move on to the individual topics in more detail.

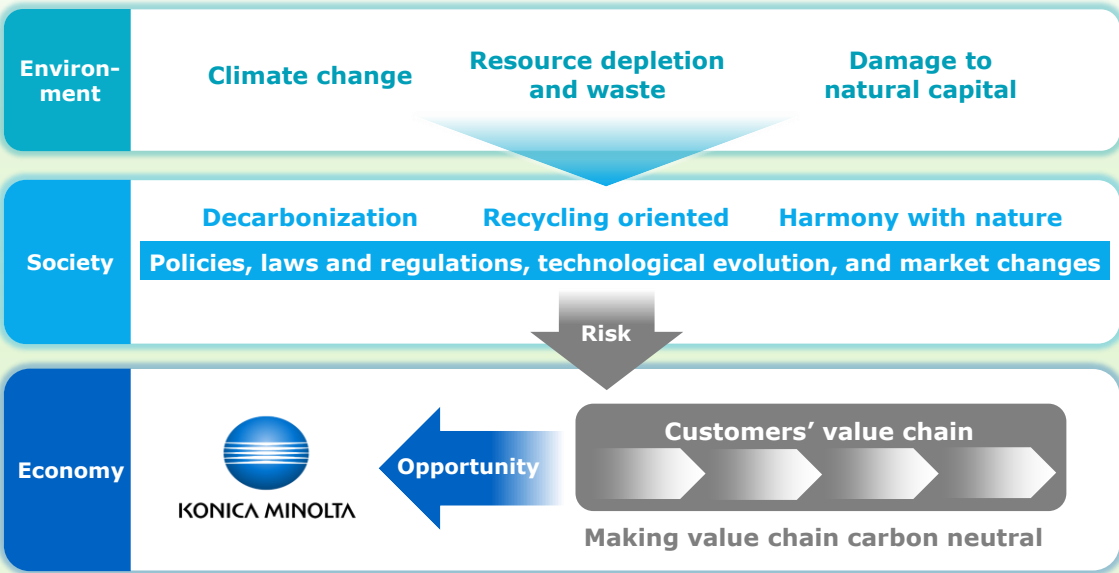
Konica Minolta's sustainability management

Industry Business growth and
sustainability value creation

Technological initiatives contributing to
decarbonization and GX

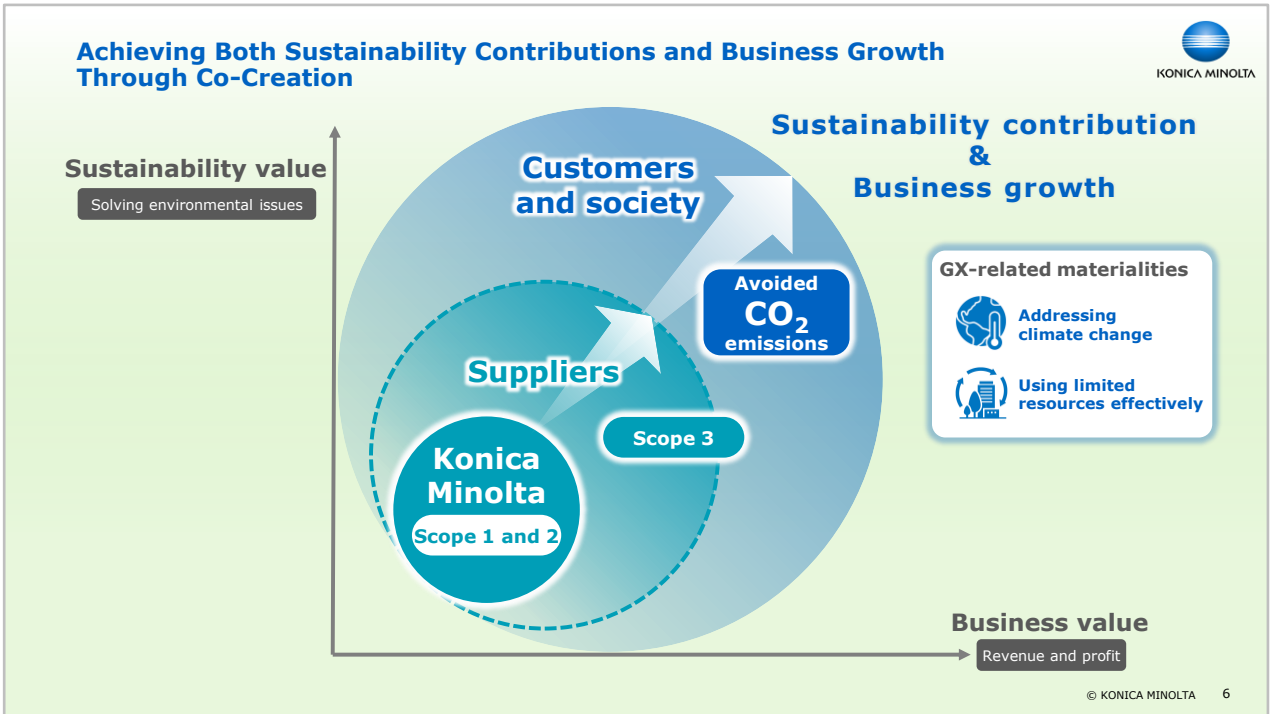


Basic Principles of Sustainability Management



First, I would like to explain the basic principles of our sustainability strategy. As global environmental issues—most notably climate change—become increasingly evident and severe, society is undergoing rapid transformation toward the realization of a decarbonization society, a recycling-oriented society, and a society in harmony with nature. These societal changes have a direct impact on our business operations, while at the same time exerting a significant influence across our customers’ supply chains.

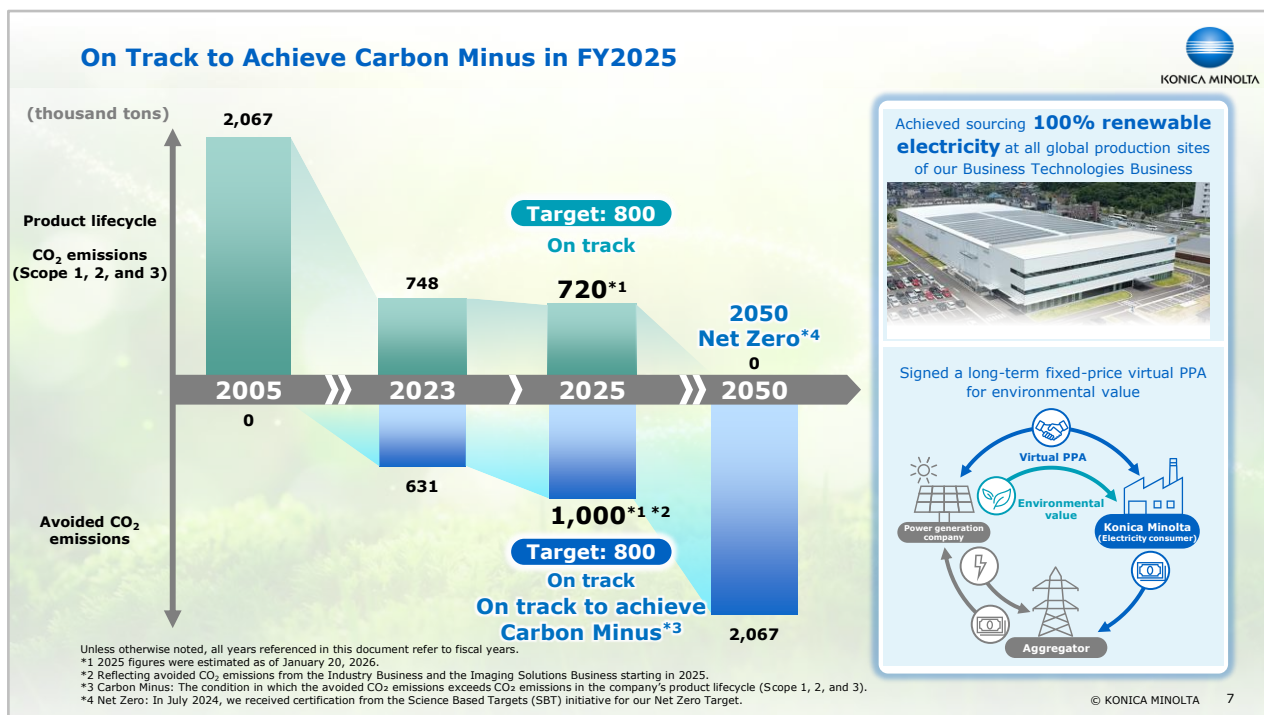
For example, leading automotive and electronics manufacturers are actively engaging upstream in their supply chains to achieve carbon neutrality across their value chains and products. In this context, addressing environmental challenges within our customers’ value chains represents a growing opportunity for our company.



We have accumulated a wide range of assets through our efforts to reduce our own environmental impact. These include deep engagement at operational sites, measurement and visualization, improvements and transformation of production processes, and a firmly embedded mindset of taking ownership in balancing environmental value with business value.

However, if we were to remain focused solely on these internal efforts, both environmental value and business value would be limited to the scope in which we directly provide final products and services to society. By leveraging the foundations of these activities, and through co-creation with our customers and suppliers to transform our own value chain, as well as broader collaboration with stakeholders across society, we can drive transformation in industrial value chains and social systems. This enables a scale of environmental impact reduction that cannot be achieved by our company alone, while simultaneously generating greater business value, namely economic value.

This is the underlying concept that forms the basis for achieving both environmental impact reduction and business growth at our company, and it supports the realization of our materialities: addressing climate change and using limited resources effectively.



Based on the foundational principles I have just described, Konica Minolta has set clear targets.

In the upper chart, with fiscal years shown on the horizontal axis, we present historical results and targets for CO₂ emissions across the lifecycle of our own products, which we consider to be within our responsibility. This includes Scope 1 and 2 emissions as well as major Scope 3 emissions. In fiscal 2025, we expect to achieve Carbon Minus as planned, with both lifecycle CO₂ emissions and avoided CO₂ emissions at 800,000 tons, and we have set a target to reach Net Zero by 2050. These targets are positioned as a response to risks arising from customer and societal expectations.

During the current Medium-term Business Plan, we have exceeded our reduction targets through energy-saving initiatives and the proactive introduction of renewable energy. We have achieved 100% renewable electricity across all global production sites of our Business Technologies Business, and in the Industry Business we have also introduced virtual power purchase agreements, or virtual PPAs, to procure environmental value under long-term fixed contracts.

The lower chart shows avoided CO₂ emissions, representing our contribution to reducing CO₂ emissions across society and among our customers. This reflects our commitment to contributing to customers' and society's emissions reductions through solutions based on our technologies, expertise, and products. These targets are positioned as opportunities that are directly linked to business growth. As our businesses grow, avoided CO₂ emissions increase accordingly. In other words, we are committed to synchronizing business growth with the expansion of our avoided CO₂ emissions.

Konica Minolta's sustainability management

**Industry Business growth and
sustainability value creation**

Technological initiatives contributing to
decarbonization and GX

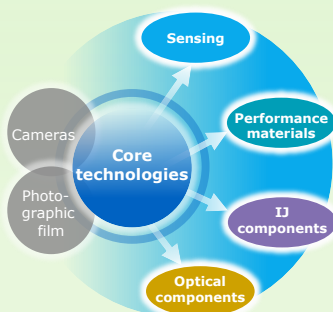


Sustainability Contributions Through Value Creation in the Industry Business

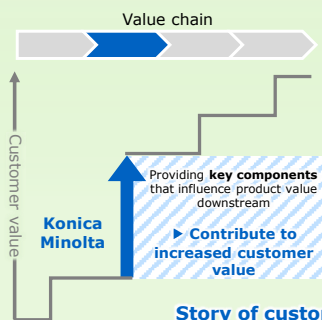


Amplifying customer value upstream in the value chain by taking a bird's-eye view of the entire industry, rather than focusing on the sales volume of end products

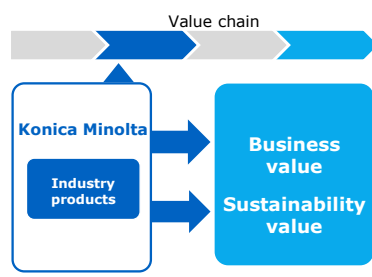
Breakdown mature products into core technologies and deploy key components in new markets



Capturing the core of the industry upstream to achieve a top position in the field and high profit margins



Delivering business and sustainability value to the end market by creating added value upstream



Story of customer value enhancement achieved through utilization of technology

© KONICA MINOLTA 9

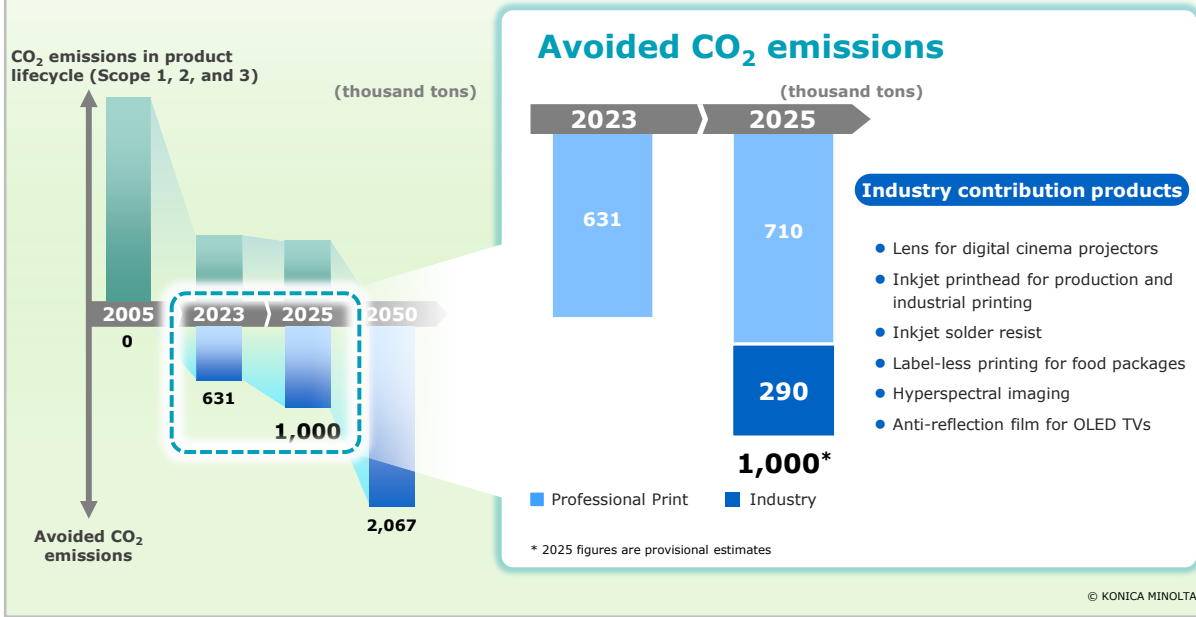
Konica Minolta's Industry Business is a business segment built on a component-based business model. Rather than pursuing the sales scale of end products, it takes a broad view of entire industries and creates value upstream in the value chain.

First, the source of our strength lies in our core technologies. We deploy these core technologies—accumulated through past and current businesses and products—into new markets. Through such technology expansion, we have achieved sustained business growth.

Second, the added value generated by our technologies and products is positioned upstream in the industrial value chain. By securing areas where the components we provide make a significant contribution to enhancing customer value across the value chain, we have established ourselves as key component providers, achieving leading market positions in our domains and high profit margins.

Third, our technologies and products are not limited to enhancing the functions of end products. They also contribute to improvements in customers' processes and quality, thereby strengthening customers' competitiveness. As a result, downstream in the value chain, we generate not only business value but also sustainability value. In other words, as our business grows, we contribute to improving the sustainability of our customers and society, and in turn, by contributing to sustainability, our business continues to grow. This creates a virtuous cycle between business growth and sustainability.

Increase in Avoided CO₂ Emissions Driven by the Industry Business

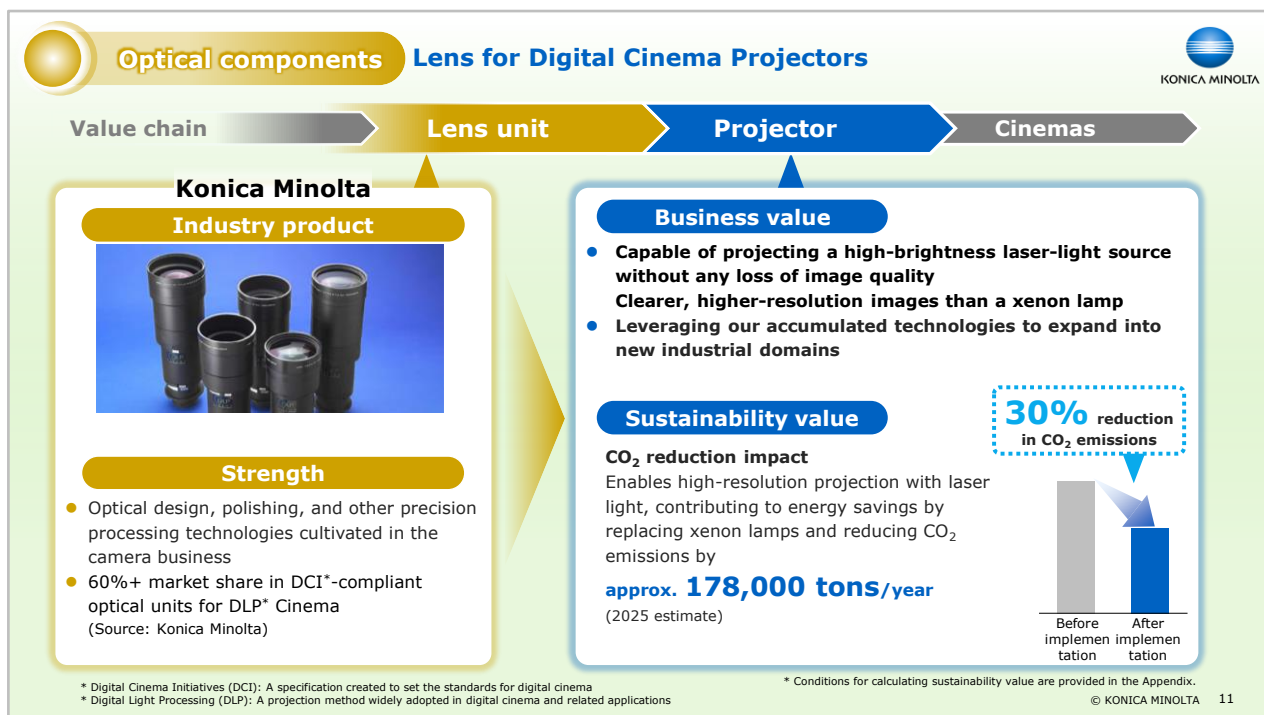


Under the current Medium-term Business Plan, we have redefined the sustainability value of the Industry Business, which is a key focus area, and have been working to visualize its impact in the form of avoided CO₂ emissions.

Please take a look at this chart. As of fiscal 2023, total avoided CO₂ emissions across Konica Minolta amounted to 631,000 tons. By fiscal 2025, this figure is expected to expand to a cumulative total of 1 million tons. Of this amount, the Industry Business accounts for 290,000 tons, demonstrating that the Industry Business is making a solid and tangible contribution toward achieving Carbon Minus.

This value is being generated by product groups such as lenses for digital cinema projectors and inkjet solder resist. These products deliver both business value and sustainability value simultaneously to their respective end markets.

From here, I would like to walk you through these specific examples in more detail.

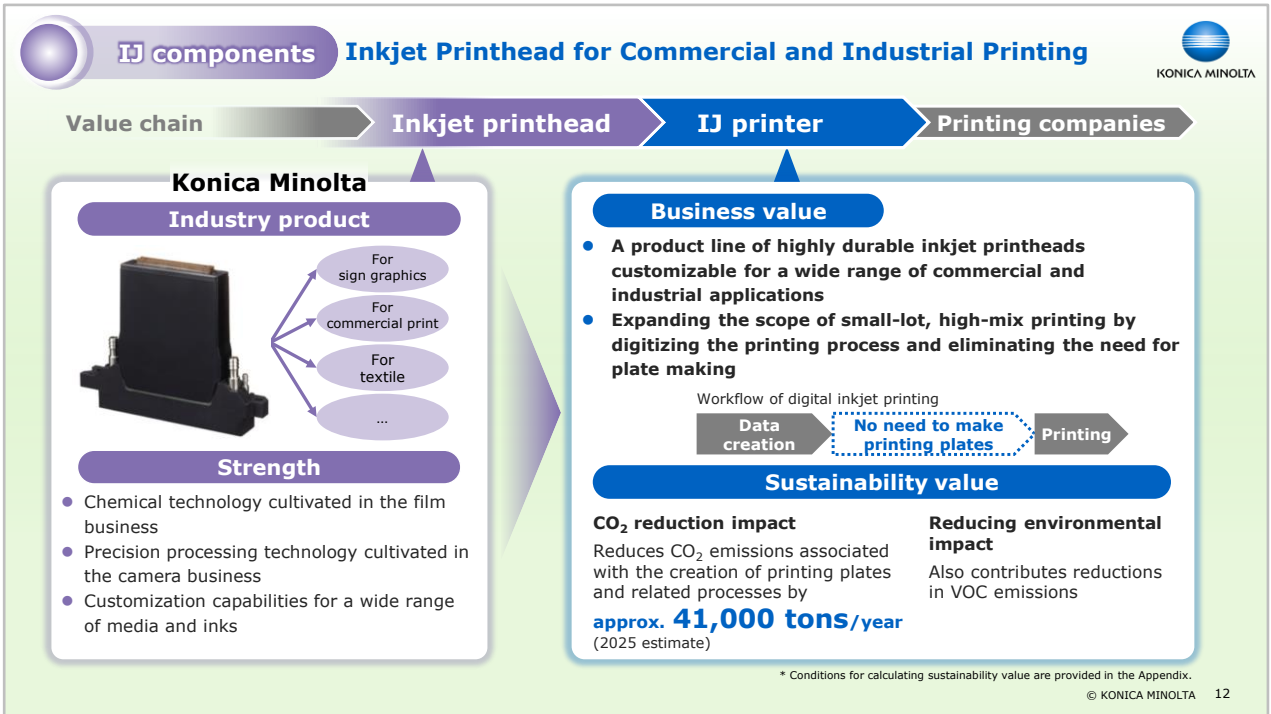


The first example is lenses for digital cinema projectors.

This product is a high-precision optical unit compliant with DCI standards, leveraging optical design, polishing, and other precision processing technologies cultivated through our camera business. In DLP cinema applications, it holds a market share of over 60%, according to our estimates. These lens units enable cinema projectors to project high-brightness laser light sources without any degradation in image quality. Compared with xenon lamps, they deliver higher-resolution projection, generating strong business value in movie theaters and the cinema market. The refined technologies behind these products are also being deployed into new industrial fields, including the development and manufacturing of high-precision optical products for semiconductor manufacturing equipment, a market that is currently expanding.

From an environmental perspective, enabling high-quality projection with laser light promotes the transition from xenon lamps to laser light sources. This shift improves the energy efficiency of projectors and reduces CO₂ emissions by approximately 178,000 tons per year, or about 30%, before and after installation. Cumulative shipments have reached approximately 120,000 units, and through continued sales expansion, these products are making a significant contribution to avoided CO₂ emissions.

In this way, products that link business value with sustainability value represent a key strength of the Industry Business. We will continue to pursue business growth through the expansion of this product portfolio. On the next page, I will introduce additional examples.



The next product is inkjet printheads for commercial and industrial printing.

By enhancing durability through chemical technologies cultivated in our film business, and by customizing our products to meet the specific needs of end-use customers, we have developed a lineup of inkjet printheads that can be widely applied across commercial and industrial printing applications.

By providing these inkjet printheads, we are accelerating the digitalization of printing in the commercial and industrial fields, thereby expanding the scope of small-lot, high-mix printing that does not require printing plates.

Eliminating the need for printing plates also contributes to reducing environmental impact. Specifically, it reduces CO₂ emissions associated with plate-making by approximately 40,000 tons per year. In addition, it contributes to a reduction in emissions of volatile organic compounds, or VOCs.

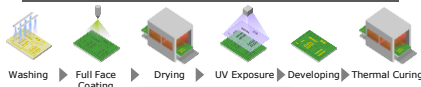


Value chain Inkjet printhead IJ printer Printing companies

Konica Minolta

Industry product

Photolithography method



Inkjet method



Strength

- Chemical technology cultivated in the film business
- Precision processing technology cultivated in the camera business
- Customization capabilities for a wide range of media and inks

Business value

- Simplifies the solder-resist formation process for printed circuit boards
- Supplies printed circuit board manufacturers with inks offering excellent adhesion to substrates and inkjet printheads with high solvent resistance.

Sustainability value

CO₂ reduction impact

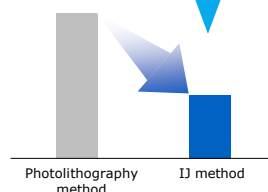
By reducing power consumption through process optimization, CO₂ emissions are reduced by **approx.**

50 tons/year (2025 estimate)

Reducing environmental impact

Also contributes to reductions in VOC emissions and industrial wastewater discharge

50% reduction
in CO₂ emissions through
lower electricity consumption



* Conditions for calculating sustainability value are provided in the Appendix.

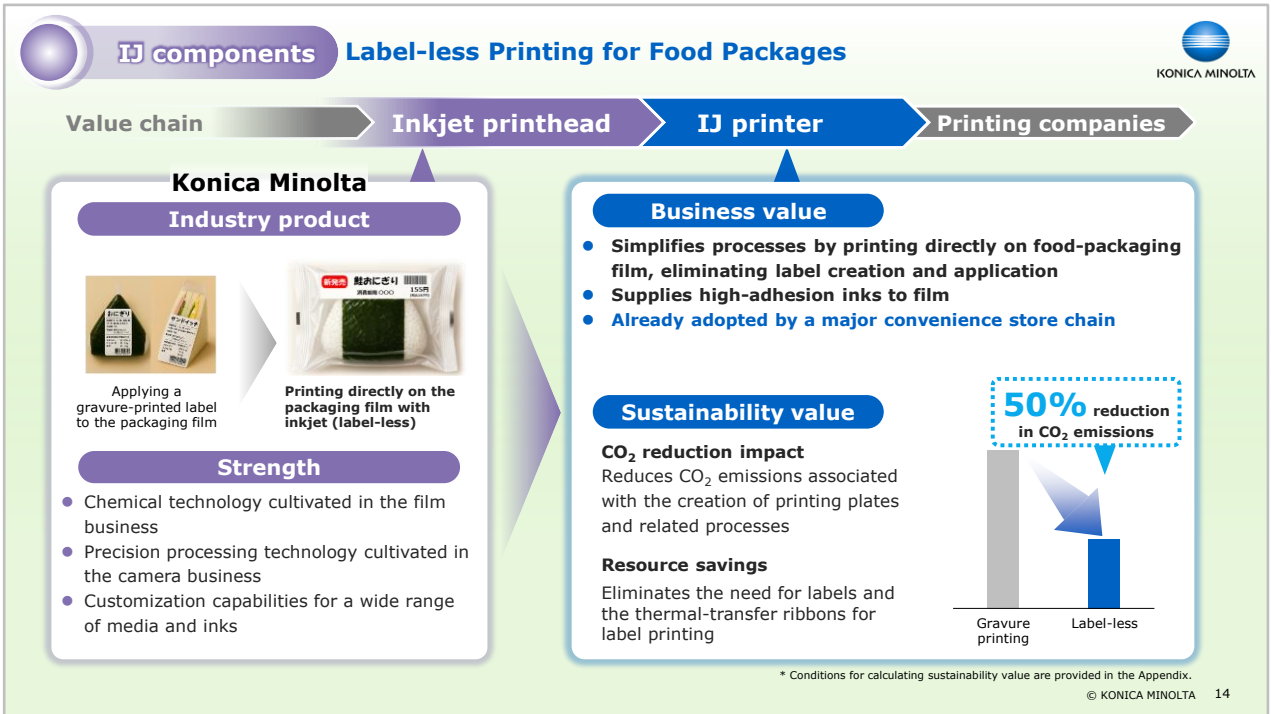
© KONICA MINOLTA 13

This product is inkjet solder resist for printed circuit boards.

Based on our chemical and precision processing technologies, we provide inks with excellent adhesion to substrates, along with highly durable inkjet printheads that can dispense these inks in a stable and highly precise manner.

In the conventional process that is currently mainstream for forming solder resist on printed circuit boards, ink is coated over the entire surface of the board, followed by temporary drying, UV exposure, and development. Through these steps, solder resist is formed only in the required areas, while unnecessary portions are subsequently removed through washing. In contrast, our technology enables a significant simplification of the solder resist formation process by adopting an inkjet-based approach. With inkjet printing, ink can be applied only to the required areas from the outset, eliminating the need for the washing and removal processes used in conventional methods. By converting solder resist formation to an inkjet process and significantly streamlining the production steps, this technology delivers substantial improvements in productivity.

From an environmental perspective, reducing process steps leads to lower electricity consumption, enabling a 50% reduction in CO₂ emissions, equivalent to approximately 50 tons per year at present. This reduction effect will continue to expand as adoption increases and conventional photolithography-based processes are replaced. In addition, the technology contributes to reductions in other environmental burdens, including emissions of VOCs and industrial wastewater, thereby enhancing overall sustainability value.

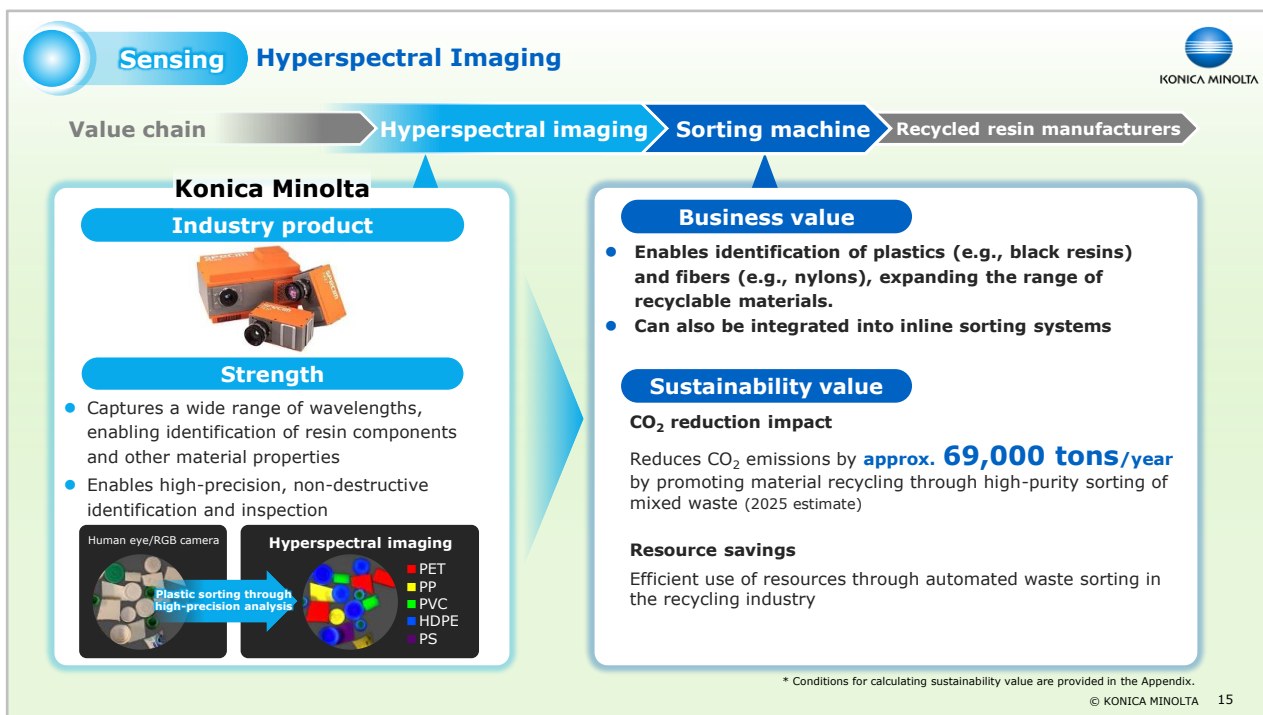


This product is label-less printing for food packages.

Leveraging our accumulated chemical technologies, we provide not only inkjet printheads but also inks that can be printed directly onto packaging films.

In conventional food packages, labels printed by gravure printing are produced separately and then affixed to packaging films. With this ink, however, direct printing onto food packaging films becomes possible. This technology reduces the number of processes required for label production and application, and it has already been adopted for food packages used by major convenience store chains.

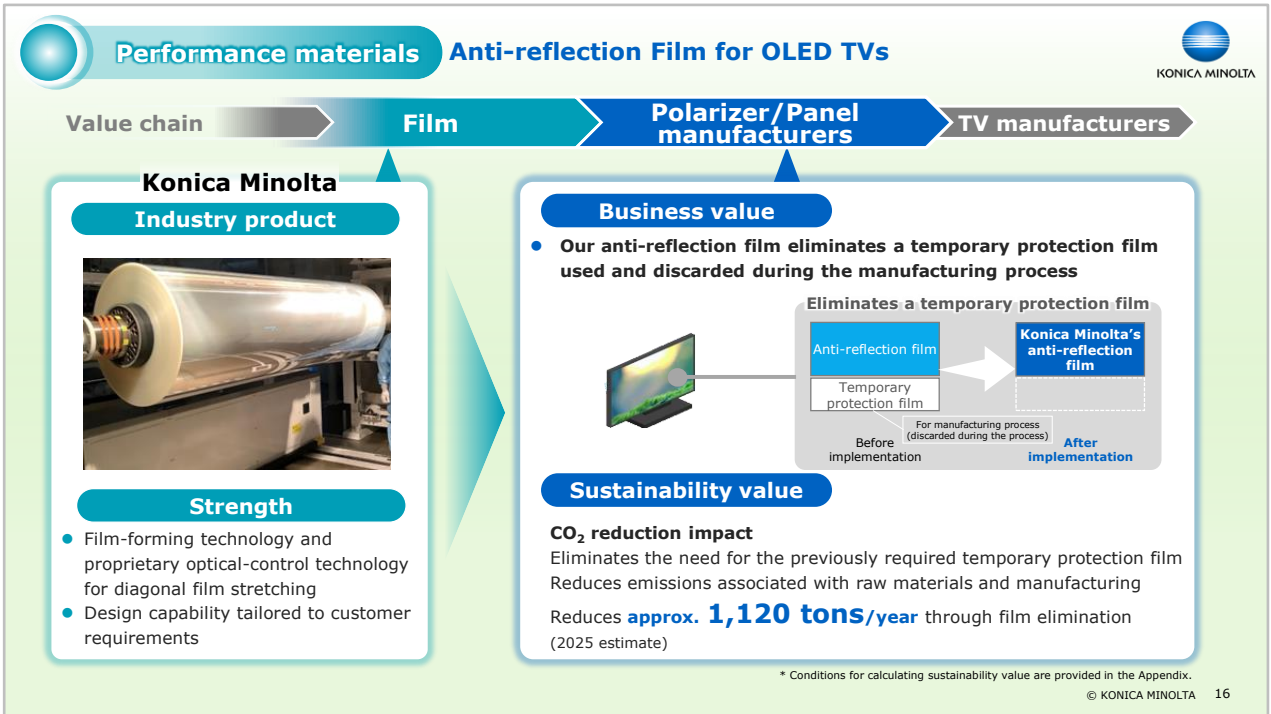
From an environmental perspective, this approach can reduce CO₂ emissions associated with processes such as plate-making by approximately 50% compared with conventional processes. In addition, it eliminates the need for labels themselves as well as thermal transfer ribbons used in label printing, thereby contributing to more efficient use of resources.



This product leverages hyperspectral imaging technology.

Hyperspectral imaging is a non-destructive technology that enables the identification of chemical substances. By capturing a wide range of wavelengths, it allows for the identification of material compositions, such as different types of resins. It also enables highly accurate identification and inspection without damaging the materials.

Through this technology, it becomes possible to identify plastics such as black resins, as well as fibers like nylon that are difficult to distinguish visually, thereby expanding the range of materials that can be sorted for recycling. As this product can be integrated into inline sorting machine, it contributes to high-purity sorting of mixed waste at recycling facilities. This promotes the material recycling of waste that has traditionally been difficult to sort and therefore recovered as thermal energy. By avoiding thermal recovery of such waste, this solution is expected to reduce CO₂ emissions by approximately 69,000 tons per year by fiscal 2025. In addition, from a resource-efficiency perspective, it contributes to the effective utilization of resources through automated waste sorting in the recycling industry.



This product is an anti-reflection film for OLED TVs.

Based on our proprietary film-forming technologies and optical control technologies, the film can be designed to meet specific customer requirements. As an anti-reflection film, it reduces reflections that impair visibility, thereby improving display performance.

In conventional approaches, a protection film is required when integrating an anti-reflection film into a display. This protection film is discarded partway through the manufacturing process once it has served its purpose. Our anti-reflection film can be integrated into displays without the need for such a protection film, making it possible to eliminate both the process-specific protective film and the associated production steps.

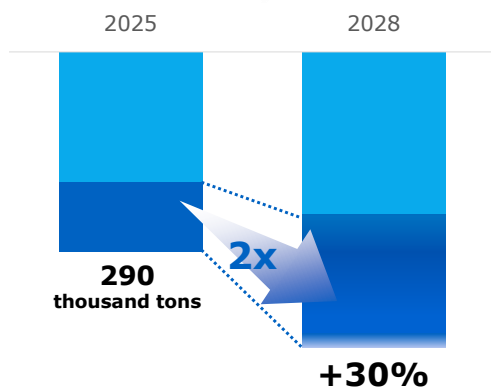
From an environmental perspective, eliminating the need for protection films used in manufacturing reduces raw material consumption and CO₂ emissions during production by approximately 1,000 tons per year.

Future Business Growth and Contribution to Sustainability



Building on continued growth of our No.1 market-share products, future growth drivers will further amplify CO₂ reduction impacts as our business expands.

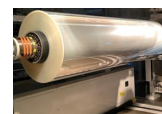
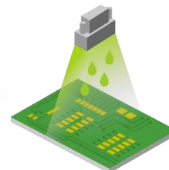
Breakdown of avoided CO₂ emissions in the Industry Business



No.1 products in market share and others



Future growth drivers



© KONICA MINOLTA 17

The product portfolio we have introduced so far represents a key strength of the Industry Business in achieving both business value and sustainability value. On this page, I will summarize our outlook for future business growth and the expansion of avoided CO₂ emissions.

In fiscal 2025, avoided CO₂ emissions from the Industry Business are expected to reach 290,000 tons. By fiscal 2028, we anticipate an increase of approximately 30%. This growth will be driven not only by our number-one market share products, but also by the expansion of our future growth drivers. Sales of these future growth drivers are projected to approximately double.

In this way, business growth and the enhancement of sustainability value are closely linked, and strengthening our product lineup will further expand our contribution to CO₂ emissions reductions.

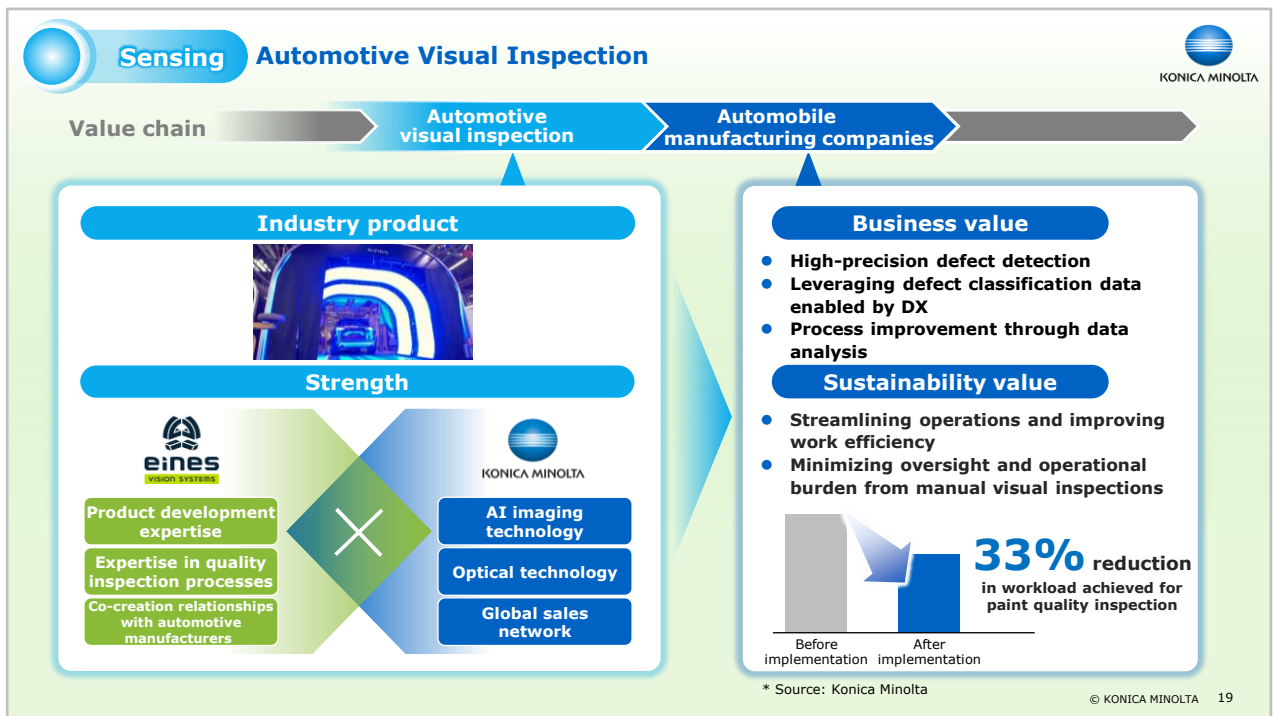


Support Human Decision with AI

Finally, I would like to share some new developments regarding automotive visual inspection.

Konica Minolta's sensing business has historically focused on replacing what was previously inspected by the human eye with cameras, providing customers with objective "measuring standards."

In automotive visual inspection, we are now offering systems that combine multiple cameras with AI. This represents a shift beyond simply providing "measuring standards" toward supporting decision-making. Under the concept of "Support Human Decision with AI," we aim to contribute to fundamental improvements in quality and production efficiency by automating inspection processes.

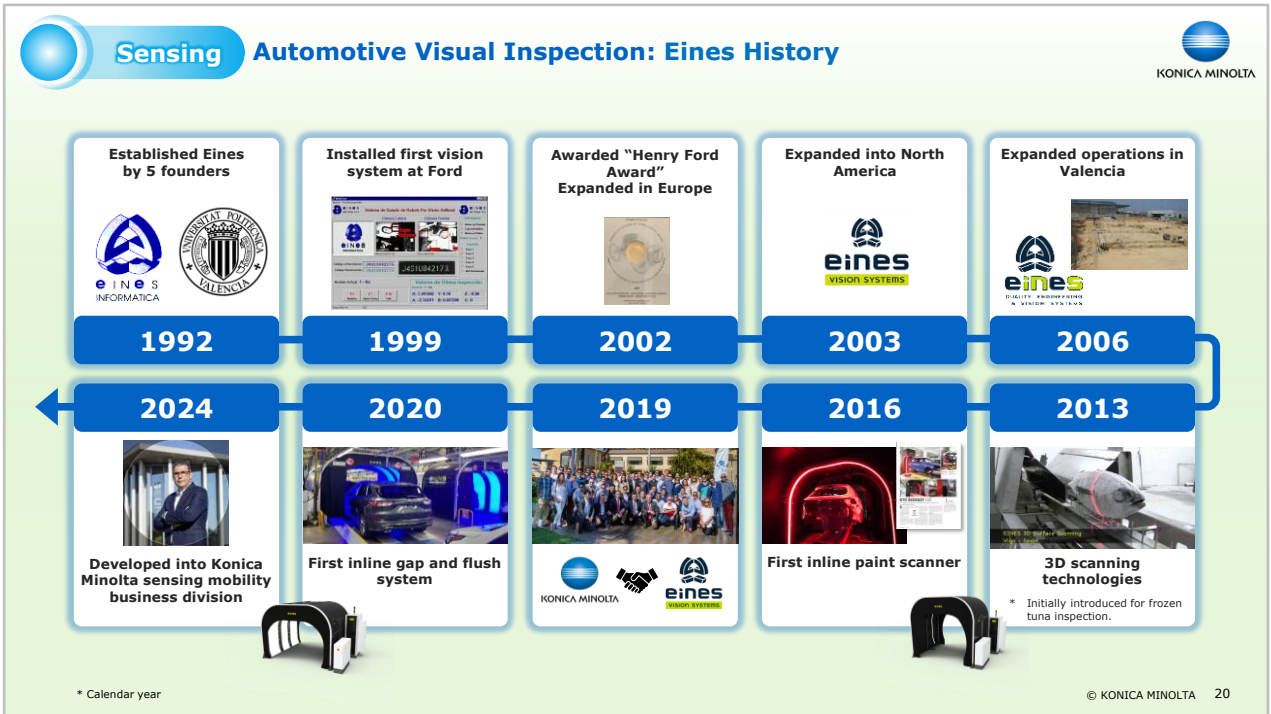


This product is automotive visual inspection.

By combining the product development capabilities of Eines with Konica Minolta's AI-based image processing and optical technologies, together with quality inspection know-how cultivated through co-creation with customers in quality control processes, and supported by our global sales network, we have established a strong competitive advantage.

This technology enables customers to leverage data utilization and analysis for highly accurate defect detection, and to feed results back into production processes, thereby contributing to continuous process improvement.

In addition, from a sustainability perspective, automating inspection contributes to labor savings and improvements in the working environment, while reducing oversights and operator workload associated with reliance on visual inspection. In paint appearance inspection processes, this solution can reduce inspection man-hours by approximately 33%.



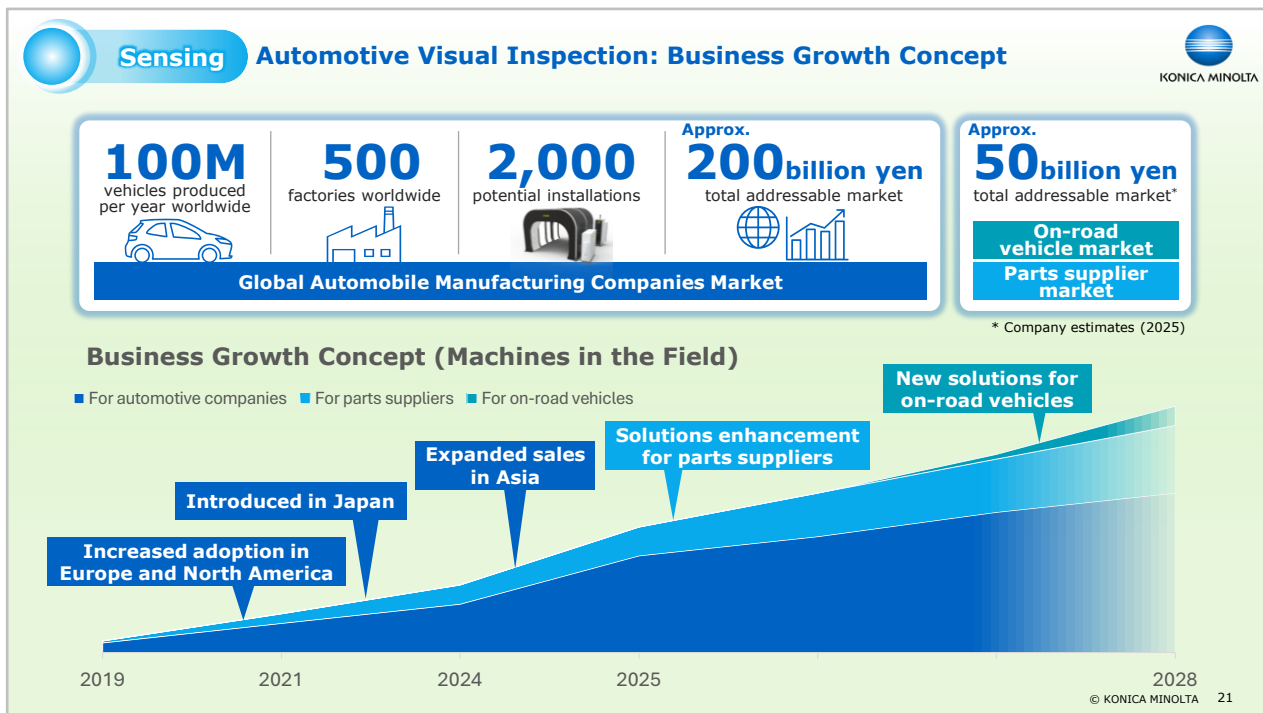
Here, I would like to introduce Eines, which became part of our group in 2019.

Eines is a leading company in automotive visual inspection systems. It has extensive expertise in factory automation for automotive manufacturing, as well as strong product development capabilities tailored to customer needs. Its solutions support the quality assurance of more than 8 million vehicles annually for major automotive manufacturers.

Eines was founded in 1992 by five alumni of Polytechnic University of Valencia. The current CEO, Jorge Broto-Ruiz, was one of the founders.

The company is located near the Valencia plant, a key European production site for Ford. Leveraging this geographic advantage, Eines has worked closely with customers on-site to develop and deploy dozens of inline inspection solutions.

In the 2000s, Eines expanded the solutions it had built in Spain across Europe, including deployments for major German automotive manufacturers, achieving steady business growth. Since joining the Konica Minolta Group in 2019, the two companies have combined their respective strengths to accelerate global business expansion across North America, China, and Asia.



It is said that there are approximately 500 automobile manufacturing plants worldwide, producing around 100 million vehicles annually. The potential number of installations for automotive visual inspection systems is estimated at approximately 2,000 units, with a total market size of around JPY 200 billion. In addition to automotive manufacturers, we also see an additional market of approximately JPY 50 billion for applications targeting parts suppliers and vehicles in circulation, such as used cars.

At Konica Minolta, we aim to expand the number of installations by accelerating global deployment, including in Asia, and by strengthening our solutions for parts suppliers and vehicles in circulation.



Sensing

Automotive Visual Inspection: Japan's First Implementation Case



KONICA MINOLTA

Suzuki Motor Corporation

Implemented paint quality inspection system | 2023*

es ψ i

Tunnel-type inline
Surface Paint Quality
Inspection System



Example of
paint defects



Subaru Corporation

Decided to implement gap and flush system | 2026*

ei ψ iS

Tunnel-type inline
Gap and Flush
Inspection System



Example of
gap and flush



Implementation expansion in progress

* Calendar year

© KONICA MINOLTA 22

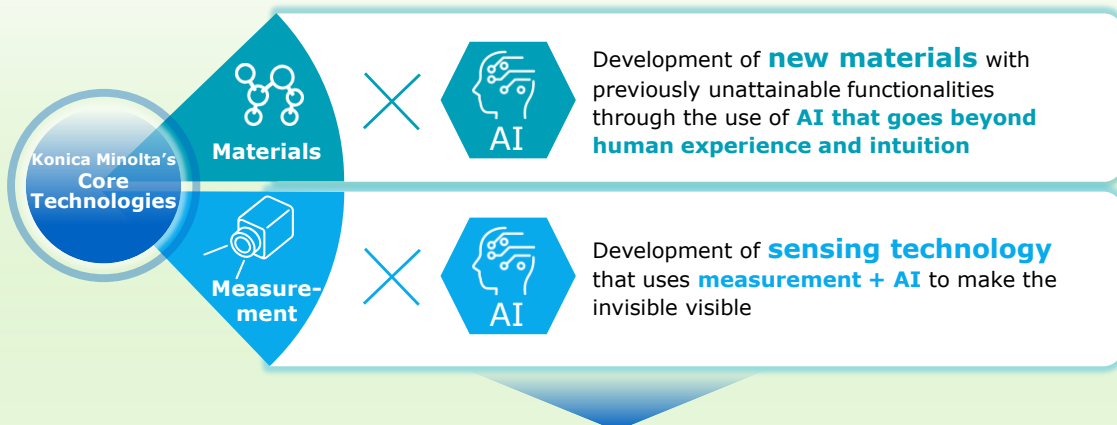
In 2023, our paint quality inspection system was installed at Suzuki Motor Corporation, marking the first deployment of this type in Japan. This year, Subaru Corporation has decided to introduce a gap and flush inspection system, which will be the first installation of its kind in Japan. In addition, adoption is expanding among other domestic manufacturers.



I am Eguchi, and I will now explain our technological initiatives that contribute to decarbonization and Green Transformation, or GX.

Under the current Medium-term Business Plan, we have been advancing technology development focused on what we call "Growth Seeds," with the aim of establishing a solid foundation for future growth. In this section, I would like to share how these initiatives are progressing steadily.

Technology Strategy to Contribute to Decarbonization and GX Based on Core Technologies



Providing new value to GX through new materials and sensing technologies

PSC*-related technologies

Process monitoring of biomanufacturing

Intelligent recycled materials manufacturing

* Perovskite Solar Cell

© KONICA MINOLTA 24

First, I would like to explain our technology strategy.

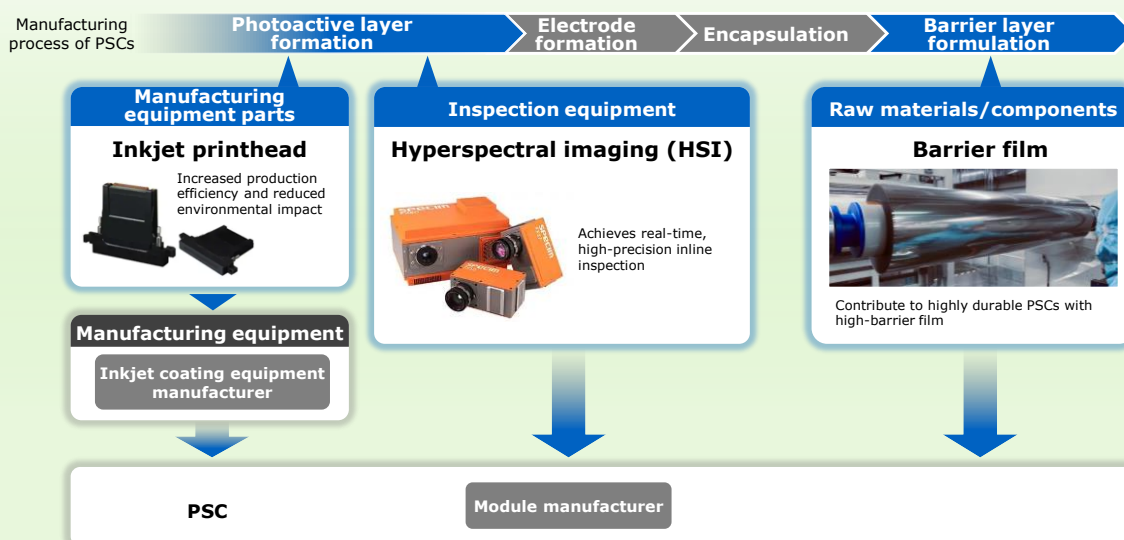
Based on reflections from our past process of business selection and concentration, we have been discussing how to identify and nurture technology themes that can contribute to future growth.

As a conclusion, we decided to focus on themes that can both contribute to decarbonization and GX in line with medium- to long-term societal needs, and target large addressable markets, by leveraging our core technologies as well as fully utilizing the assets we already possess. These assets include not only technologies and products, but also manufacturing equipment and other infrastructure.

Against this backdrop, materials and measurement—areas that represent our strengths and have evolved from our founding businesses—are technologies with a high potential to contribute to decarbonization and GX. By further advancing these core technologies through AI, which we have been developing for approximately 15 years, we believe we can create new materials with functionalities that were previously unattainable, and develop sensing technologies that can visualize what was previously invisible. Through these efforts, we aim to deliver new value to GX.

Based on this thinking, we have decided to focus on three themes with significant growth potential: barrier films for perovskite solar cells, process monitoring of biomanufacturing, which is expected to see rapid growth, and intelligent recycled materials.

PSC-Related Technologies: Addressing Key Challenges for Product Adoption Through Inkjet Printhead, HSI, and Barrier Film



© KONICA MINOLTA 25

Turning to technologies related to perovskite solar cells, which were also mentioned yesterday by the Prime Minister Takaichi in a press conference, we have already shared—as discussed in our November briefing—that for barrier films we have confirmed the potential to achieve durability equivalent to 30 years in theoretical terms. Today, I would like to introduce two additional technologies through which we can contribute to the perovskite solar cell field.

The first is related to improving the efficiency of the process for forming the perovskite photoactive layer. We have received requests from manufacturing equipment manufacturers to use our inkjet printheads for coating the perovskite layer.

The second is an inspection technology using hyperspectral imaging (HSI). To stably mass-produce perovskite solar cells with high power generation efficiency, it is critical to apply the photoactive layer uniformly and without unevenness. Hyperspectral imaging enables inspection of this uniformity with high precision. Verification of these technologies and solutions by prospective customers has already begun.

These technologies leverage three elements that Konica Minolta possesses, and they address the key challenges to the widespread adoption of perovskite solar cells: power generation efficiency, durability, and manufacturing cost. They are themes for which we are now aiming toward market deployment.

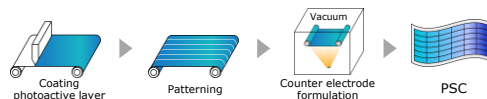
Inkjet Printhead: Increased Production Efficiency and Reduced Environmental Impact Through Depositing Perovskite Layer



Needs

- More efficient use of materials during manufacturing
- Lower costs through increased production efficiency

Die-coating and patterning method



Inkjet method



- More efficient material use and lower environmental impact
- No need for laser patterning process

Strength

- High solvent resistance enables stable operation
- Micro droplets enables precise deposition



Achievements

Samples have been provided to several manufacturing-equipment manufacturers and are currently under evaluation

Next, I would like to explain each of the perovskite solar cell-related technologies in more detail.

First, regarding inkjet technology, die-coating is currently used in many cases as the coating method. With this approach, the photoactive layer is applied uniformly over the entire surface, followed by a cutting process for each individual cell. This requires laser-based patterning, which not only lengthens process time and reduces production efficiency, but also consumes a large amount of energy, resulting in higher environmental impact, including CO₂ emissions.

To address these challenges, directly patterning the photoactive layer using inkjet technology makes it possible to eliminate the laser cutting process. This is expected to improve production efficiency and material utilization efficiency, while also reducing environmental impact.

The strengths of our inkjet printheads lie in their high solvent resistance, which enables stable coating over long periods of time, as well as their ability to dispense extremely small droplets for highly precise coating. We have already provided samples to multiple manufacturing equipment manufacturers, and evaluations are currently underway for application in actual production processes.

HSI: High-Precision, Real-Time Inline Inspection Essential for the Production Process



Needs

- Quality verification of film thickness and color tone (during production and at final inspection)
- High-efficiency inline inspection

Strength

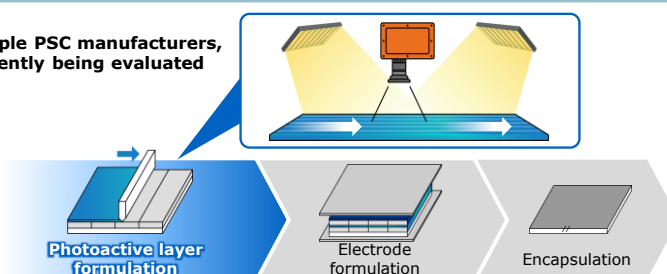
- High-precision, immediate evaluation of perovskite-layer quality
- Capability for inline inspection of objects



Achievements

Proposing solutions to multiple PSC manufacturers, and these solutions are currently being evaluated

Manufacturing process of PSCs

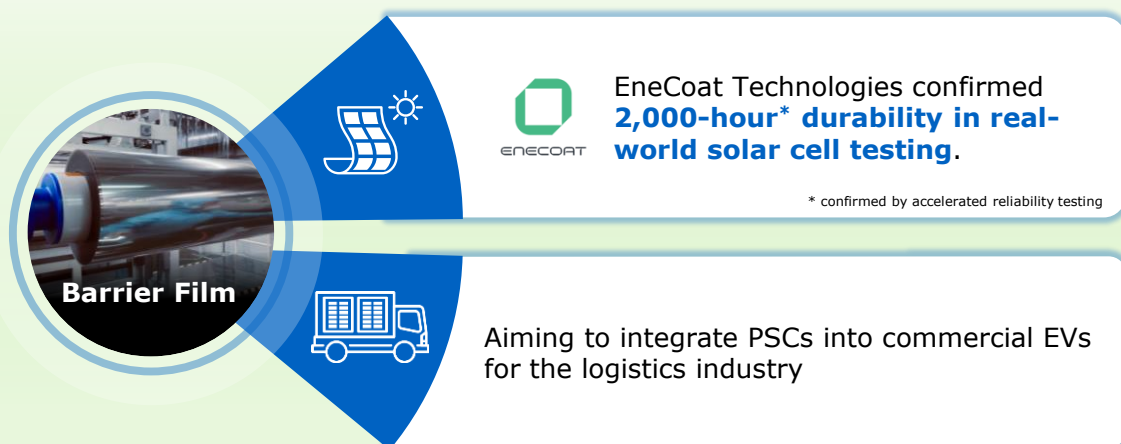


© KONICA MINOLTA 27

Next, I would like to introduce high-precision inline inspection in the perovskite solar cell manufacturing process using hyperspectral imaging. To improve manufacturing efficiency, it is desirable to conduct real-time quality inspection during the formation of the photoactive layer. However, until now, a method to inspect the entire film surface comprehensively and without omissions has not been established. Our hyperspectral imaging technology has already addressed customer needs to perform real-time, high-precision inline inspection of the physical properties and quality of objects flowing through production lines.

In the manufacturing of perovskite solar cells, by measuring the film quality and appearance of the perovskite layer, it becomes possible to conduct highly efficient and highly precise inline quality inspection. Currently, we are proposing this inspection technology as a solution for customers' production processes, and it is being evaluated by multiple perovskite solar cell panel manufacturers.

Steady Progress of Barrier Film Development



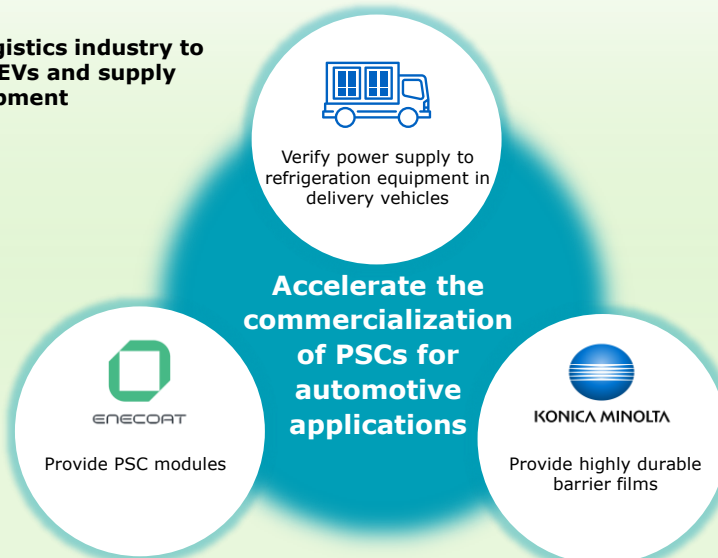
© KONICA MINOLTA 28

Regarding barrier films, following our previous announcement of the standalone durability test results, further evaluations have been conducted at EneCoat Technologies Co., Ltd. as the next stage of assessment. Accelerated durability testing has been carried out at the solar cell module level, and evaluations are still ongoing. As of now, durability of 2,000 hours has been confirmed. Exceeding 2,000 hours has verified that outdoor use is feasible, and this has been recognized as a significant milestone. In addition, toward practical application in vehicle-mounted use, we have begun considering the implementation of a proof of concept for installing perovskite solar cells on commercial EVs in the logistics industry.

Barrier Film: Integrating PSCs into Commercial EVs for the Logistics Industry by EneCoat Technologies Co., Ltd. & Konica Minolta, Inc.



- Exploring a PoC with the logistics industry to install PSCs on commercial EVs and supply power to refrigeration equipment



© KONICA MINOLTA 29

Leveraging their lightweight characteristics, perovskite solar cells are increasingly being considered for installation in locations where deployment was previously difficult. In this context, there is growing interest in their application within the logistics industry, where reductions in CO₂ emissions are strongly required. Perovskite solar cells are expected to contribute not only to lowering environmental impact, but also to improving operational efficiency by reducing charging time for EVs.

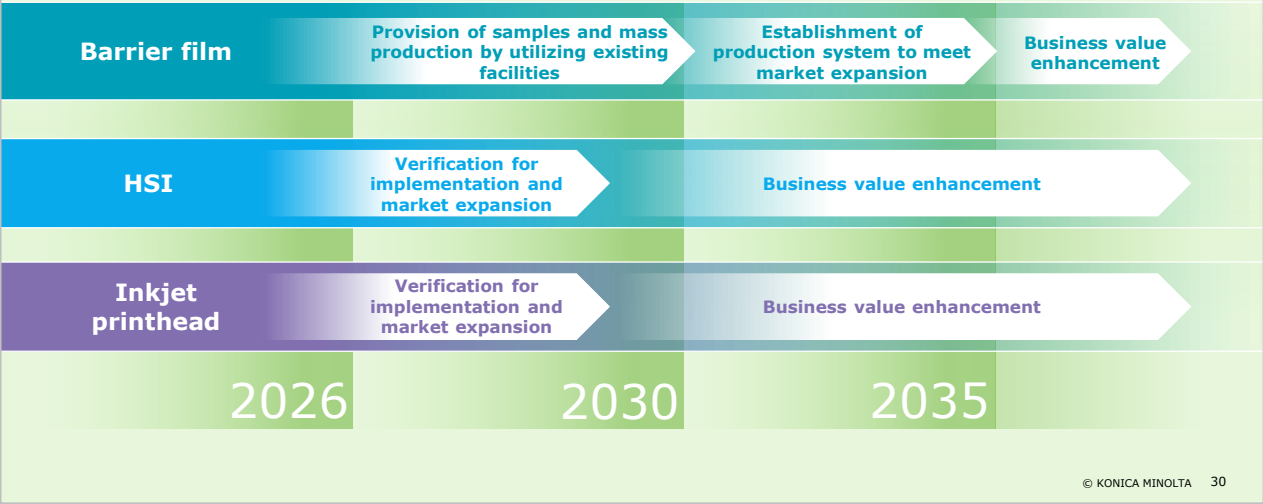
Against this backdrop, we have begun considering the implementation of a proof of concept in which perovskite solar cells are installed on refrigerated EVs used in the logistics industry, with the aim of supplying power to refrigeration equipment. We expect this demonstration to play an important role in accelerating the practical application of perovskite solar cells for use in commercial EVs.

The Only Company Globally Contributing to PSCs Through Multiple Technologies



Promoting technical verification based on our core technologies

- Barrier film: Scale up in phases based on demand leveraging our established production technology and equipment
- HSI & inkjet printhead: Advance verification for implementation, aiming to enhance business value



I would now like to explain the overall picture for the future development of our perovskite-related technologies.

For barrier films, we will continue to provide samples to customers and advance verification and demonstration activities. Looking toward around 2030, we plan to prepare a mass-production framework by utilizing our existing production facilities, and thereafter gradually expand production capacity in line with the pace of market growth.

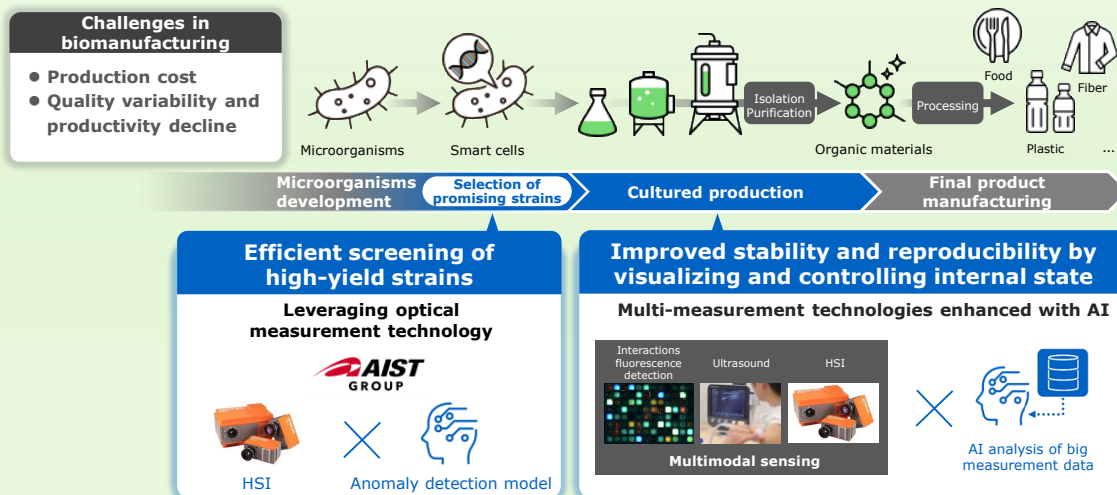
For inkjet printheads and hyperspectral imaging, we aim to move forward so that these technologies can be introduced into the manufacturing processes of perovskite solar cell manufacturers within the next few years.

For all of these businesses, we will make appropriate investments in line with the expansion of the perovskite solar cell market, with the goal of achieving medium- to long-term business growth.

Biomanufacturing: Pursuing Open Innovation with the National Institute of Advanced Industrial Science and Technology (AIST)



- Established Bioprocess Technology Cooperative Research Laboratory with AIST in June 2023
- Started joint research as **the first partner company** upon the opening of the newly established Biomanufacturing Research Building by AIST



© KONICA MINOLTA 31

Next, I would like to introduce recent progress in biomanufacturing-related initiatives.

In June 2023, we established a Bioprocess Technology Cooperative Research Laboratory with National Institute of Advanced Industrial Science and Technology (AIST). In addition, at the same time AIST opened its new Biomanufacturing Research Building last year, we became the first company to launch a joint research program. Through this collaboration, we are advancing R&D that combines AIST's extensive track record in bioprocess research with Konica Minolta's sensing and AI technologies.

Through this joint research, we are addressing key challenges in biomanufacturing, including production costs, quality variability, and declines in productivity. Specifically, by leveraging our hyperspectral cameras together with AI technologies capable of detecting subtle differences in features extracted from the data, we are developing a high-yield strain detection system that enables efficient selection of superior strains for use in bioproduction cultivation processes.

Furthermore, even after high-yield strains have been identified, we are also working on the development of a bioproduction management system aimed at visualizing cultivation conditions and improving productivity with mass production in mind. This system combines multiple measurement technologies with AI-based analysis to monitor cultivation processes and control environmental conditions. By doing so, it enables more stable and efficient mass production of valuable substances while reducing costs.

Through these efforts, we aim to become a provider of sensing technologies and systems that form the foundation supporting the growth of the biomanufacturing market.

On the next slide, I will introduce the high-yield strain detection system in more detail.

Initial Outcome of Joint Research with AIST: Successful Development of a System for Rapid Detection of High-Yield Strains



“This technology drastically improves the efficiency of screening, which traditionally required extensive effort, and is expected to revolutionize the entry point to biomanufacturing”

ISHIMURA Kazuhiko, President, AIST

Conventional screening



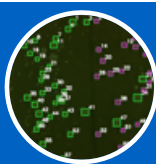
- Comprehensive screening dependent on the intuition and experience of the researcher
- The repeated cycles of cultivation and yield assessment lead to increased workload and higher costs

Requires **months** for cultivation and yield evaluation

Konica Minolta's high-yield strain detection system



- Drastic improvement in screening efficiency
- Non-destructive detection of high-yield strains during early-stage cultivation



Developed a system enabling detection **within days**

*Detection systems of overproducing microbial strains using hyperspectral imaging and anomaly detection model"
Japan Society for Bioscience, Biotechnology, and Agrochemistry 2025 Annual Meeting, March 8, 2025
[JSBBA_2025_SE102.pdf](#)

Initiated value validation for substances and ingredients added to processed foods such as frozen foods



© KONICA MINOLTA 32

In conventional screening processes for high-yield strains, strains are selected by repeatedly culturing newly developed strains and evaluating their productivity. Because this process requires significant time and testing costs for cultivation, it has been one of the major factors driving up production costs in biomanufacturing.

With our high-yield strain detection system, characteristic data of strains are acquired using HSI, and analyzed by AI models capable of detecting subtle differences in features among production strains. This enables simple, non-destructive identification of high-yield strains at an early stage of cultivation.

Through this system, screening processes that previously required several months for cultivation and productivity evaluation can be completed within days, contributing to the acceleration of mass production of valuable substances.

We have also received comments from Mr. Ishimura, President of AIST, expressing his expectation that this technology will drastically improve the efficiency of screening—which traditionally required extensive effort—and become a transformative technology that innovates the entry point to a wide range of biomanufacturing applications.

Going forward, as an initial application, we plan to advance studies in collaboration with related companies for the production of substances and ingredients added to processed foods such as frozen foods.

Accelerating customers' sustainable manufacturing through our new GX-contributing technologies

Technology theme	Key technology establishment	Sample evaluation	Mass production technology establishment	Progress across all themes
PSC-related technologies	○	○		Inkjet printhead under evaluation by multiple manufacturing equipment manufacturers Quality inspection with HSI under evaluation by multiple PSC manufacturers 2,000-hour durability confirmed in testing of EneCoat Module Aiming to integrate PSCs into commercial EVs
Intelligent recycled materials	○	○		Began providing samples to electronics and automotive parts manufacturers
Process monitoring of biomanufacturing	○			A system for rapid detection of high-yield strains under development (presented at Japan Society for Bioscience, Biotechnology, and Agrochemistry)
Membranes for CO ₂ capture	○			Established key enabling technologies for high-performance, low-cost membranes for CO ₂ capture

This brings me to the final slide.

In addition to the perovskite solar cell-related technologies and biomanufacturing initiatives introduced today, we are also advancing the development of intelligent recycled materials and membranes for CO₂ capture. For intelligent recycled materials, we have already developed prototypes and have begun providing them not only to electronics manufacturers but also to automotive parts manufacturers, with evaluations now underway. For membranes for CO₂ capture, by combining our core materials technologies and film-forming technologies with AI, we have been developing membranes for CO₂ capture that offer both high separation performance and low cost, and have progressed to the stage of establishing the underlying elemental technologies.

Going forward, we will continue to leverage our new technologies to help accelerate our customers' sustainable manufacturing, and we aim to become a leading company contributing to decarbonization and GX.

That concludes my presentation. Thank you very much for your attention.



KONICA MINOLTA

Appendix



Sustainability Value Calculation Method*1



The avoided CO₂ emissions of the products presented in this document has been estimated by the Company with reference to the Guidance on Avoided Emissions v2.0*2 published by the World Business Council for Sustainable Development (WBCSD). The products for which the Company currently accounts avoided CO₂ emissions (estimated at 1 million tons of CO₂ in 2025) are expected to account for approximately 9 % of the Company's total revenue in 2025.

- **Lens for Digital Cinema Projectors**

Our contribution: We supply DCI-compliant optical units that are effective in the use of laser light sources for digital cinema projectors. We have the largest market share in DLP cinema applications.

Calculation method for the avoided emissions: Power consumption reductions achieved by replacing xenon lamps with laser light sources were calculated by projector size.

- **Inkjet Printhead for Production and Industrial Printing**

Our contribution: We supply inkjet printheads and inks that serve as key components of digital printing presses.

Calculation method for the avoided emissions: This was calculated from CO₂ emissions associated with plate-making processes that become unnecessary through the transition to inkjet printing. The avoided CO₂ emissions presented in this document are calculated for inkjet printheads sold externally on the premise that they are incorporated into printing presses. The contribution attributable to the inkjet printheads is adjusted based on the market size ratio (inkjet printhead market size divided by printing press market size).

- **Inkjet Solder Resist**

Our contribution: We supply inkjet printheads, inks, and a printing process capable of directly printing a solder resist layer on printed circuit boards.

Calculation method for the avoided emissions: The reduction in electricity consumption was calculated based on measured results from multiple customers, reflecting the elimination of processes (drying, UV exposure, and developing) achieved by replacing photolithography method with an inkjet method for solder resist formation, as well as on the ink application are and ink sales volume.

- **Label-less Printing for Food Packages**

Our contribution: We supply inkjet printhead and inkjet inks that enable direct printing on food packaging films.

Calculation method for the avoided emissions: For the lifecycle CO₂ emissions associated with printing 4,000 meters of four types of flexible packaging, the avoided CO₂ emissions attributable to plate-making and printing plate processes were calculated based on a comparison between (i) printing all four types using gravure printing and (ii) printing only one base design using gravure printing while printing the remaining three types using inkjet printing.

- **Hyperspectral Imaging**

Our contribution: We supply high-precision plastic identification camera systems applicable to plastic sorting machines for various material recycling separation technologies (such as optical, electrostatic, and density-based methods), holding the largest market share in comparable camera market.

Calculation method for the avoided emissions: The avoided emissions were calculated based on the increased amount of high-purity plastics diverted from incineration and thermal recycling to material recycling through the use of our camera systems.

- **Anti-reflection Film for OLED TVs**

Our contribution: Our anti-reflection film helps eliminate the need for a temporary protection film used and discarded during the polarizer production process

Calculation method for the avoided emissions: The calculation was based on the CO₂ emissions attributable to the protection film that can be eliminated through the adoption of our anti-reflection film.

*1 Estimated by the Company based on information available as of January 2026.

*2 Source: <https://www.wbcsd.org/resources/guidance-on-avoided-emissions-helping-business-drive-innovations-and-scale-solutions-toward-net-zero/>

Glossary



- **Scope 1**
Greenhouse gas emissions that are directly emitted by a company or organization through activities such as fuel combustion and on-site power generation.
- **Scope 2**
Greenhouse gas emissions that are indirectly generated through the consumption of electricity, heat, or steam supplied by external companies or organizations.
- **Scope 3**
Greenhouse gas emissions that are indirectly generated along the supply chain and other activities related to a company's operations, excluding Scope 1 and Scope 2 emissions.
- **Avoided CO₂ emissions**
Greenhouse gas emissions, expressed in CO₂-equivalent terms, that are reduced for customers and their supply chains through a company's solutions or activities and are not included in Scope 1, Scope 2, or Scope 3 emissions.
- **Carbon Minus**
A state, defined by the Company, in which avoided CO₂ emissions exceed the Company's own lifecycle CO₂ emissions (Scope 1, Scope 2, and Scope 3).
- **Net Zero**
A state in which net greenhouse gas emissions are effectively zero.
- **Aggregator**
An entity in the power industry that aggregates renewable energy sources and distributed energy resources and manages the balancing of electricity supply and demand.
- **VOC (Volatile Organic Compounds)**
A collective term for organic compounds that readily evaporate and becomes gaseous in the atmosphere, and are regarded as one of the causes of air pollution.
- **Hyperspectral imaging**
An imaging technique in which a wide range of wavelengths are divided into multi-wavelengths. This technique can be used to sort different types of plastics that cannot be identified by the human eye or an RGB camera.
- **Die-coating**
A coating method in which a liquid is continuously dispensed across a surface through a slit-shaped die while being applied uniformly onto substrates such as films.
- **Patterning**
A method for patterning a perovskite layer coated over an entire surface into individual photoactive cells.
- **Inline**
The practice of performing inspection processes directly on the production line, enabling inspection to be carried out without stopping production.
- **Smart cell**
Cells that have been artificially modified to enable the production of valuable substances by leveraging their inherent production capabilities; synonymous with high-yield strains.



KONICA MINOLTA