



Precious Metals Business

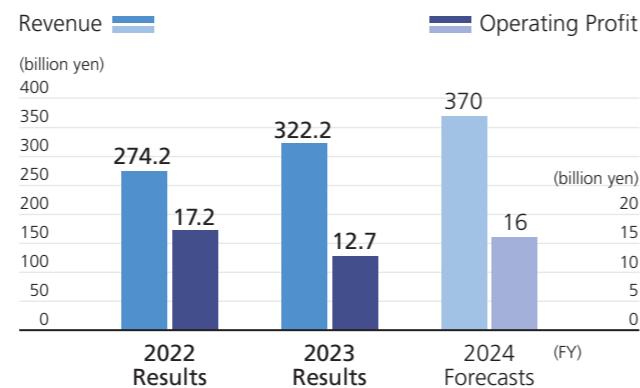
The ARE Group collects and recycles scraps containing precious metals from several industrial sectors. By recovering and then selling gold, silver, platinum, palladium and other precious metals—indispensable to modern manufacturing—we are contributing to the effective use of resources and the development of industry.

Business Domain



Market Conditions

As expectations grow for a circular economy that makes effective use of resources, the importance of precious metals recycling continues to rise. In particular, demand is increasing for the supply of precious metals in ways that are friendly to people, society, and the environment, balancing resource efficiency with reduced environmental impact. While our business is influenced by trends in the various industries from which we collect raw materials, we have been seeing an upward trend in collection volume especially from the jewelry sector under current market conditions.



Strengths and Responses to Potential Risks

	Strengths	Responses to Risks
Precious Metals Recycling	<ul style="list-style-type: none"> (1) Ability to assay the precious metal content of recyclable materials (2) A sales force of about 200 people all over the country who are customer-focused and well-versed in IT (3) Sourcing raw materials with full awareness of human rights and environmental issues, along with traceability management 	<ul style="list-style-type: none"> (1) Allocating resources to growing markets and new sectors (2) Growing market share by using proprietary systems in sectors with shrinking markets (3) Strengthening competitiveness through higher production efficiency (4) Improving green gold sales
North American Refining	<ul style="list-style-type: none"> (1) The largest refinery in North America as our refining platform (2) Locations close to client mining companies (3) Our Group's creditworthiness and financing capacity 	<ul style="list-style-type: none"> (1) Expansion of value-added services based on our refining platform (2) Avoiding dependence on global supply chains

Precious Metals Recycling Business

Business Fields Supporting Precious Metals Recycling

E-Scrap
Gold Silver Palladium

Electronic substrates used in personal computers, smartphones, and home appliances contain gold, silver, and palladium. We collect manufacturing process scrap and electronic substrates from used products. We process them, including crushing and sorting, to recover and recycle precious metals. Our precise sampling and advanced assay techniques are two of our strengths.

Precision Cleaning
Gold Silver Platinum Palladium

We ensure the quality of customers' equipment by regularly and carefully cleaning the electronic components and semiconductors that they manufacture. Customers entrust us with their equipment, and we strip and recover precious metals that have adhered to it during use. The recovered precious metals are then returned to customers.

Plating Treatment
Gold Silver Palladium

Since precious metal plating is an exceptional way to prevent corrosion and improve conductivity, it is used in numerous applications from industrial to decorative products. Using a proprietary electrolytic recovery system for precious metals, we recover and recycle the precious metals remaining in plating solutions. We also return the recovered materials to customers as a precious metal compound as requested.

Catalysts
Platinum Palladium Rhodium

Automobiles have catalytic converters that detoxify harmful substances in exhaust gases, and some precious metals, such as platinum and palladium, are used in these devices. We apply our original technologies to recycle precious metals from automotive, chemical, and other catalysts.

Dentistry
Gold Silver Platinum Palladium

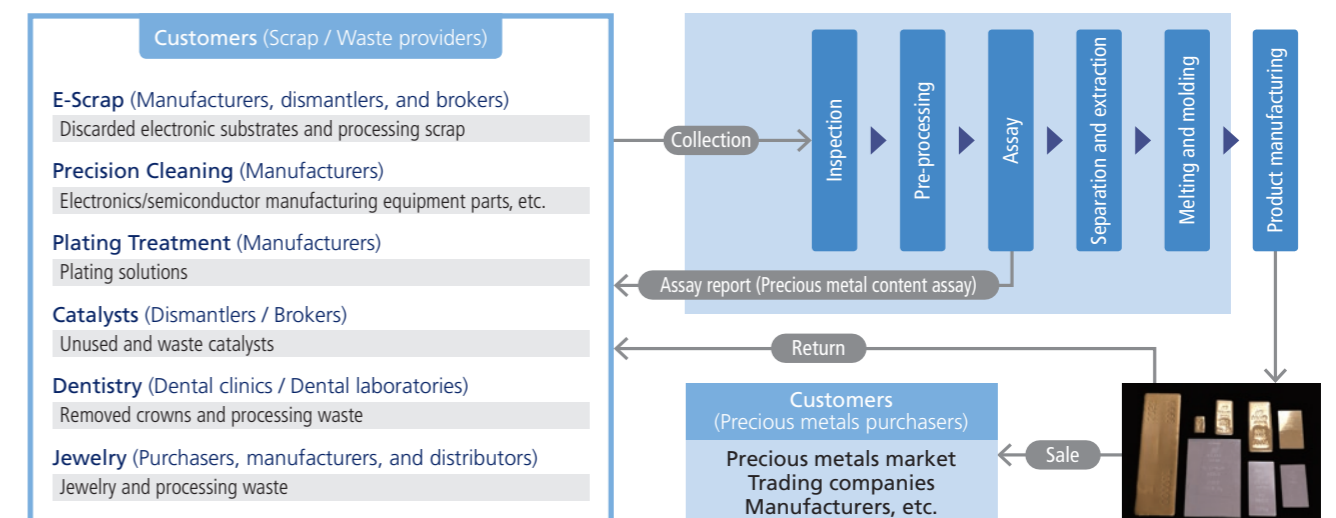
Gold-silver-palladium alloys are some of the key materials used in dental prostheses such as crowns and inlays, and the percentage of precious metal content varies by type. Customers, such as dental clinics and laboratories, provide us with waste containing these metals and we recycle them. Our unique centralized management of collection, assay, and reporting ensures a high level of return for value.

Jewelry
Gold Silver Platinum Palladium

We collect and recycle precious metals from jewelry and ornaments, coming from purchasers, manufacturers, and processors, that are no longer needed as well as precious metal scrap generated during manufacturing. In addition to accurate assay, we produce high-quality precious metal bullion, while returning raw materials to customers for manufacturing and processing.

Collecting and Recycling Precious Metals

Our manufacturing operations in Japan and elsewhere in Asia ensure the most efficient recovery of precious metals and the optimal processing of recyclable materials, depending on the characteristics and admixtures in the business fields where we collect materials. We also meet customer requirements by fully using the best methods and most efficient refining plants for the type of precious or rare metal.



Global Expansion (As of March 31, 2024)

Our precious metals recycling operations in Asia have been growing steadily since 1994, focusing on dentistry and electronic waste (e-waste). We tailor business models to local market conditions, while using the proprietary technology we have developed in Japan. We have expanded our operations into North America with the addition to the Group of Asahi Refining in March 2015.



Asahi Precetec Established: 1952 Incorporated: 2023 Location: Chiyoda-ku, Tokyo Number of employees: 453	 ASAHI G&S SDN.BHD. Incorporated: 1994 Location: Penang, Malaysia Number of employees: 7 Business line: Precious metals recycling from electronic materials and jewelry	 Asahi Precetec Korea Incorporated: 2006 Location: Chungju, South Korea Number of employees: 31 Business line: Precious metals recycling from dentistry and electronic materials
ASAHI METALFINE Established: 1952 Incorporated: 2023 Location: Chiyoda-ku, Tokyo Number of employees: 78	 Asahi Refining Canada Incorporated: 2015 Location: Ontario, Canada Number of employees: 116 Business line: Gold and silver refining	 Asahi Refining USA Incorporated: 2015 Location: Utah, USA Number of employees: 141 Business line: Gold and silver refining
 Asahi Refining Florida Incorporated: 2019 Location: Florida, USA Number of employees: 56 Business line: Gold and silver product processing	 Asahi Depository Incorporated: 2021 Location: New York, USA Number of employees: 14 Business line: Precious metal vaulting	



Outlook and Expectations for the Advancement of Overseas Business

Susumu Hirota
General Manager of Overseas Business Development Department

While Japan is expected to face a declining population and shrinking economic scale in the future, Southeast Asia boasts an impressive annual GDP growth rate of 5%. The total population of Southeast Asia is projected to reach 730 million by 2030, with significant economic growth anticipated in the coming years.

In Malaysia, Western semiconductor manufacturers are making large-scale investments. Our subsidiary in Penang is located near semiconductor manufacturers that use a substantial amount of precious metals. With our waste processing license, we anticipate an increase in the recovery of precious metals from the semiconductor industry.

In Thailand, Vietnam, and Indonesia, the jewelry industry is thriving, with gold demand being three to four times higher than in Japan. In addition to our efforts in precious metals recycling,

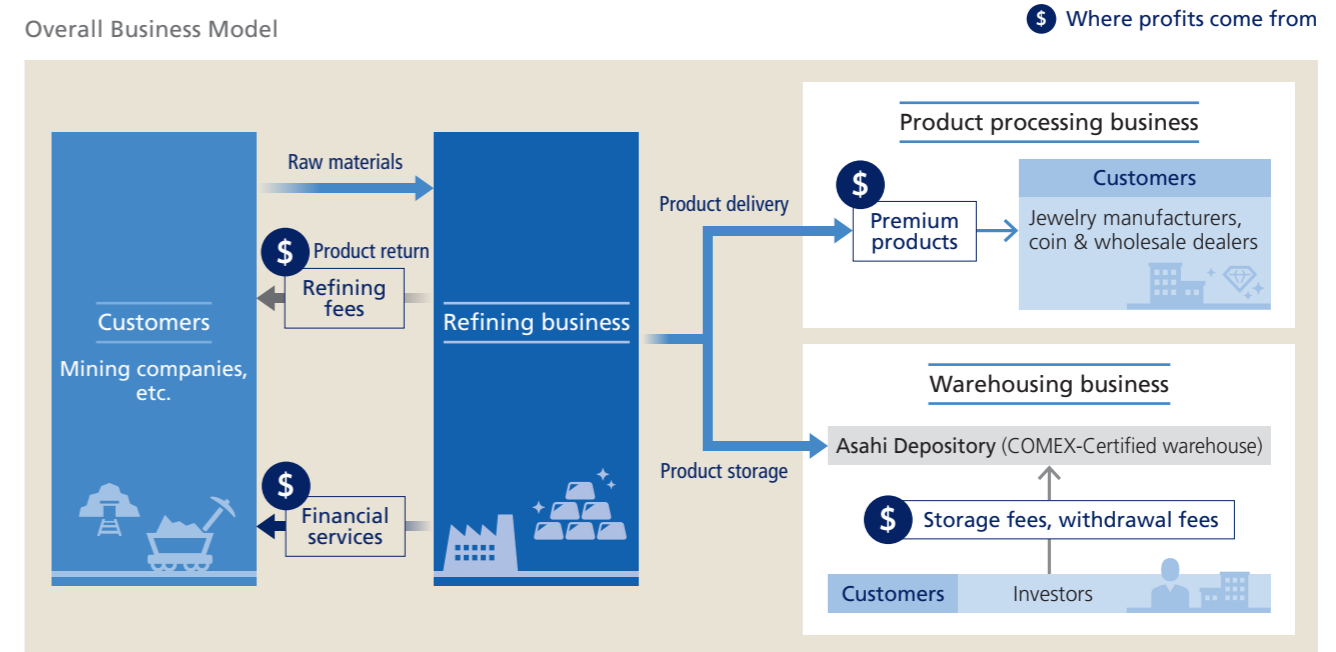
the growing awareness of recycling in Southeast Asia has led to a gradual increase in the demand for recycled gold. We expect to eventually focus on sales in this area as it becomes more viable.

India has one of the largest jewelry markets in the world, along with the fourth-largest automobile sales market, which has been growing due to the increasing middle-income population, and the third-highest volume of waste generated from electronic products globally. There is strong demand expected for precious metals recycling from automotive waste catalysts. Through repeated visits to the region, we have confirmed that the local precious metals refining technology is often rudimentary, which increases the demand for our advanced technology.

We possess advanced precious metals recycling technology with a strong market share across various sectors in Japan. Moving forward, we will expand the precious metals recycling technology and proposal capabilities we have developed domestically to overseas markets. While exploring various options such as establishing local subsidiaries and refining plants, as well as joint ventures and M&As with local companies, we will carefully select the most suitable entry strategies. At the same time, we will focus on developing young talent capable of taking on new challenges, driving the creation of a new era.

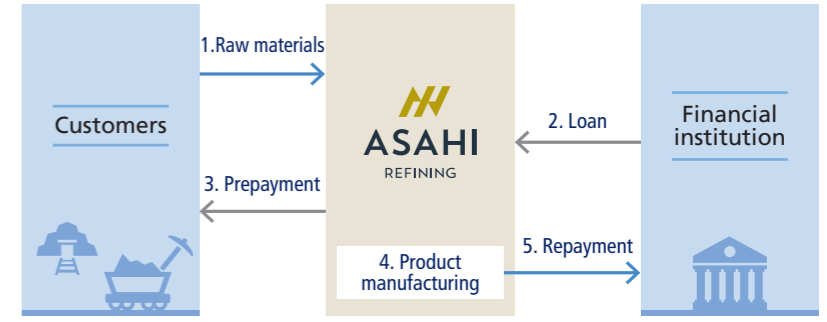
Refining Business in North America

We are engaged in the refining of gold and silver sourced from mines in the United States and Canada, boasting one of the world's top refining scales. The raw materials of gold and silver received from mining companies differ significantly from those handled in Japan and Asia, both in terms of precious metal content, impurity composition, and scale of intake. To address the specific requirements of each type of raw material, we primarily employ dry processing in North America, which involves melting at high temperatures to separate the precious metals. Additionally, we are committed to developing new services based on our refining platform, responding to diverse customer needs with financial services, the manufacturing of high-value-added products, and the storage of precious metals in state-of-the-art warehouses.

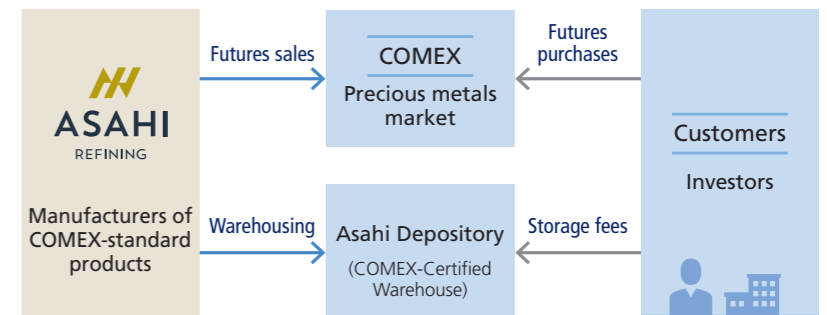


Process of Financial Services and Warehousing Business

- Prepayment Transactions**
- Key Points of Revenue Structure
- Shorten the delivery time from receiving raw materials to returning the finished products to customers.
 - Receive interest for the prepayment days from customers by delivering products before the contract's delivery date.
 - Since the prepayment is made after receiving the raw materials, there is no risk of bad debt.



- Warehousing Business**
- Key Points of Revenue Structure
- Manufacture products according to NYMEX (COMEX) standards at Asahi Refining.
 - Deposit the products at Asahi Depository and execute futures sales.
 - Deliver the products to the futures buyers and receive monthly storage fees.



R&D System

Technical Research Center—Pursuing Original R&D

We conduct proprietary research and development and assay technology development in the fields of recycling of precious and rare metals, utilization of hydrogen and heavy water, and development of new business. We established the Technical Research Center in Kobe High-Tech Park to serve as our R&D hub. We are looking to take even greater strides forward as a company that contributes to society by improving quality and technical innovation.



Research and Development	We anticipate the needs of our customers and strive to create new products and business by applying our large body of elemental technologies and developing new technologies.
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- Technology for separating and refining precious and rare metals
- Precious metals molding and refining technology
- Development of decarbonization technologies
- Development of hydrogen and heavy water utilization technologies

Refining Technology

In addition to wet precious metals refining technology, which is particularly effective for processing recyclable materials, the Group is developing dry precious metals refining technology effective for the primary raw material processing it is performing in North America. By advancing and combining both wet and dry refining technologies, we are creating effective precious metals refining techniques for handling all kinds of raw materials.

Release Technology

To collect precious metals adhered to the surfaces of parts and jigs, etc., used in the manufacture of electronic components and semiconductors, the Group is developing technology to chemically and physically exfoliate precious metals safely and reliably without damaging the parts and jigs.



Assay	The ARE Holdings Group's core assay function supports a diverse range of corporate activities using the latest assay equipment and high-level assay technology. In addition, we play an important role in maintaining and enhancing trust with the Group's customers.
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- Development of new assay technology
- Technical guidance for assay groups at each plant and sales office
- Purity assay of precious metal products
- Environmental analysis of issues such as plant wastewater discharges
- Environmental measurement certification business

Assay Technology

The Group is developing assay techniques using X-ray and inductively coupled plasma (ICP) optical emission spectrometry with the aim of conducting rapid and accurate transactions with customers. We are upgrading our precious metals assay at sites in and outside of Japan, including Asahi Refining.



Engineering	Using cutting-edge technology, experts from each sector design, produce, construct, and provide maintenance of facilities at subsidiaries in and outside Japan, helping to support safe and stable operation of the facilities.
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- Design, production, construction, and maintenance of facilities and buildings
- Maintenance control of existing facilities
- Installation and maintenance of precious metal collection facilities for our customers
- Support for installation of robotics and IoT for equipment







Production System

Bando Plant—Achieving a One-Stop Process from Reception to Final Product



Production Flow

▼ Inspection & Preprocessing ▼	We inspect the dental and jewelry scrap entrusted by our customers on an individual basis and select the optimal processing flow. By incorporating the latest equipment, we have achieved cost reductions through circular wet processing with chemical reuse, while also minimizing wastewater generated at the factory, ensuring environmentally friendly operations.	
▼ Assay ▼	We offer high-precision assay by using equipment and methods suited to the raw materials and compositions. Additionally, we respond flexibly to customer needs by selecting fast and accurate assay methods, while working to improve reliability and further advance the sophistication of precious metals assaying.	
▼ Refining ▼	Using advanced separation and extraction technologies developed from our early experience, we refine various compositions generated during preprocessing to high purity. We have deployed automated equipment to ensure a safe and efficient working environment, while streamlining operations.	
▼ Melting & Molding ▼	Using dry refining technology for precious metals, we remove impurity elements and cast granules and bars to form high-quality precious metal bullion. The equipment is controlled by advanced robotics technology, enabling automated operation, and IoT technology is employed for operational monitoring, making nighttime automatic operations possible.	
Product Manufacturing	High-purity precious metal bullion are processed into products with specifications and shapes that meet market and customer demands, and are then sold and delivered. The final products are assigned serial numbers for identification, and traceability management is implemented, covering raw material history, manufacturing history, weight values, product purity, and other relevant details.	



Features of the Current Bando Plant and Initiatives at the Second Phase of the Bando Plant

Masaki Fukushima
General Manager of Technical Research Center

The current Bando Plant is a fully integrated facility capable of handling everything from raw material intake to final product manufacturing. The status of each process and its traceability are monitored through a central system, ensuring stable production of 100% recycled precious metals (Green Gold). Additionally, the introduction of collaborative robots and autonomous transport robots has improved productivity, making the Bando Plant one of the leading precious metals recycling facilities in the world by merging manufacturing know-how with the latest technologies. The second phase of the Bando Plant is currently under construction, with the following initiatives being undertaken.

We are developing a recycling system focused on platinum group metals, which are anticipated to play a key role in emerging

fields such as hydrogen, ensuring the continued availability of these critical rare metals for societal progress.

In the electronics and catalyst sectors, we are streamlining production by consolidating processes and enhancing product quality and production capacity through technological innovation.

The energy used at the plant will consist of hydrogen, green electricity, and natural gas, minimizing the use of fossil fuels to create an environmentally friendly process.

A 350kW solar panel system will be installed on the new building, and we are constructing a Net Zero Energy Building (ZEB) that will reduce energy consumption for non-production activities to zero.

A 600m² cafeteria will be built to offer employees both sustenance and a space to unwind. In the event of a natural disaster, it will be opened as a shelter, helping to ensure the safety and security of the local community.

With a vision of employees taking pride in the Company's business, environmental, and social activities while working healthily, we are progressing with the construction of the plant, aiming for completion in April 2025.

Retail Business

In 2024, we established the Retail Business Division and launched an official online store, beginning the sale of precious metals to the general public. While our business has traditionally focused on B2B, we aim to expand the appeal of precious metals as tangible investment assets by delivering high-quality products, made possible by our advanced technology, directly to our customers.



Official Online Store Launch


In 2024, we opened an online store to sell gold and silver bullion produced from recycled materials, as well as minted products imported from our North American subsidiary, Asahi Refining. Shortly after the launch of the online store, we also began handling platinum. Our gold, silver, and platinum bullion products are manufactured at the Bando Plant, one of the largest and most advanced recycling plants in Asia.

We have passed rigorous evaluation criteria for product quality, assay capabilities, and responsible sourcing. Gold and silver have been certified as Good Delivery Bars by the London Bullion Market Association (LBMA), while platinum and palladium are certified by the London Platinum and Palladium Market (LPPM). In addition, we have obtained the Responsible Jewellery Council's (RJC) Code of Practices (COP) and Chain of Custody (COC) certifications, ensuring the supply of precious metals that are friendly to people, society, and the environment.


We are also a full member of the Japan Gold Metal Association and are recognized by domestic and international exchanges, including the Osaka Exchange (OSE) and the New York Mercantile Exchange (NYMEX), as deliverable brand. Our products are highly valued for their superior quality in global markets.

In addition to high-quality bullion, we also offer original minted products manufactured by our North American subsidiary. Our diverse and distinctive product range reflects our commitment to quality and innovation.

Overview of Official Online Store




Available Hours	10:00 AM - 6:00 PM (JST, Japan Standard Time)
Products Available (as of September 2, 2024)	6 types of gold products (3 of which are minted products)
	17 types of silver products (9 of which are minted products)
	1 type of platinum product



What Are Minted Products?


Minted products refer to small-sized precious metal items made by cutting or stamping precious metal bullion into specific sizes and shapes using specialized molds and presses.




Official Online Store


ASAHI METALFINE - Online Shopping

<https://ec.asahimetalfine.com/>
(Japanese version only)



Instagram





Asahi Gold Club — Gold Bullion Storage Service Launched

We have launched a new service, Asahi Gold Club, to meet our customers' needs. This service provides a comprehensive solution for the seamless process of purchasing, depositing, selling, and returning gold bullion.



Key Features

1 Flexible Operations

Gold bullion purchased or deposited by customers is securely stored by us under a deposit for consumption. Customers can sell or return the bullion at any time.

2 Digital Management

Manage your precious metals online. View real-time asset status and past transaction history.

3 Cost Efficiency

No purchase or storage fees. Efficient operation through online completion.

4 Wide Range of Support

In addition to our brand's gold bullion, customers can also deposit bullion from other specified brands.

Illustration of Usage

Purchase

No commission fees. Available in increments of 1g for purchases of 10g or more.

Storage

No storage fees.

Sale

For transactions settled by 3:00 PM, the same day's buyback price applies. Available in increments of 1g for sales of 10g or more.

Return

Minimum return of 100g, in increments of 100g. Delivery within 5 days.

Asahi Gold Club is the ideal service to meet the needs of physical precious metals investment. With an entirely online transaction system, customers can easily and securely invest in gold bullion. Through this service, we aim to expand our customers' asset management options and support the realization of more flexible investment strategies.

A unique experience with physical assets

At the core of our product development is the belief that the true shine and value of precious metals can only be appreciated when held in one's hands. In the digital era where intangible assets are becoming more common, we focus on the distinct appeal of physical precious metals. Through their texture, weight, and brilliance, we aim to offer our customers a special experience. Our official online shop offers a range of precious metal products, including gold, silver, and platinum, each with its own unique features.

Precious metals offer more than just an investment opportunity—they represent inherent value and beauty. Through our products, we seek to provide our customers with the opportunity to engage with these materials directly, gaining a deeper understanding of their worth and significance.



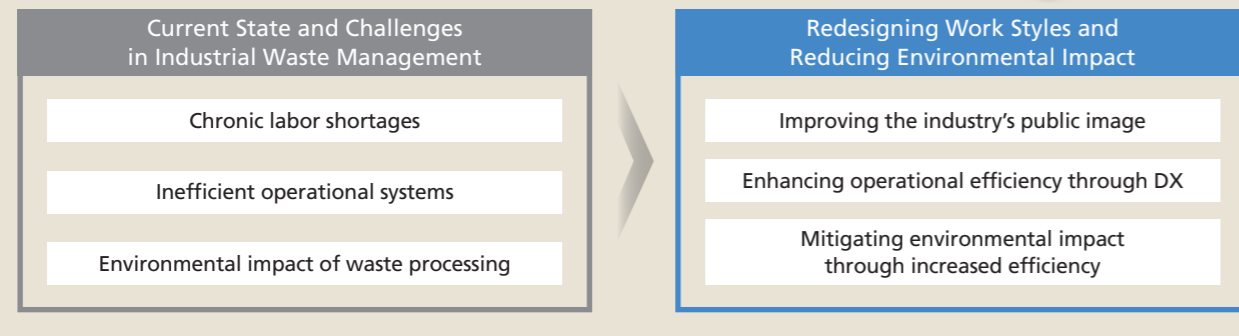


Environmental Preservation Business

We offer a digital platform designed to streamline operations for industrial waste management companies. By digitizing all aspects of industrial waste management—including manifest management, administrative reporting, and electronic contracting—we aim to eliminate paper and waste and contribute to the realization of a circular society.

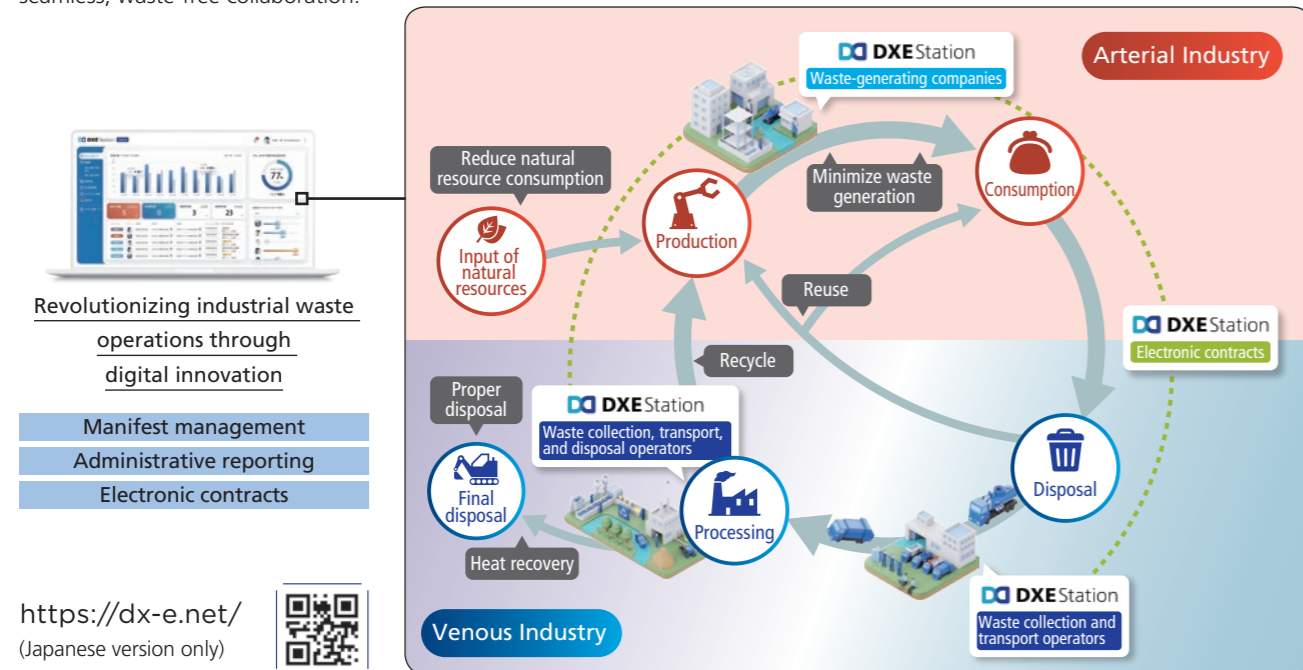
To Build an Infrastructure that Carries the Future

370 million tons per year
We digitally optimize industrial waste management, a vital foundation of society, to significantly reduce both on-site workloads and environmental impact.



Business Domain

The industrial waste management sector, a venous industry, faces numerous challenges, including an aging workforce, chronic labor shortages, and inefficient, paper-reliant processes. DXE Station, a platform provided by DXE, one of our group companies, digitizes and streamlines a range of industrial waste disposal operations, including manifest management, contracting, and administrative reporting. By connecting operators within the circulatory sector through DXE Station, we facilitate streamlined operations and seamless, waste-free collaboration.



Revolutionizing industrial waste operations through digital innovation

- Manifest management
- Administrative reporting
- Electronic contracts

<https://dx-e.net/>
(Japanese version only)



Market Conditions

We address the fundamental challenges facing the industrial waste management sector, paving the way for workplaces where people are truly motivated to work.

Challenges in Industrial Waste Management

<p>Entrenched Paper-Based Practices</p> <p>Paper continues to dominate the management of industrial waste manifests. However, the extensive time and labor required for manual entry, mailing, and physical storage pose significant challenges to operational efficiency.</p>	<p>Challenges in Transitioning to Digital Systems</p> <p>Despite the Japanese government's introduction of an electronic manifest system in 1998, adoption rates remain low. Key barriers to widespread implementation include resistance to using computers and low awareness among waste-generating companies.</p>	<p>Aging Workforce and Shortage of Successors</p> <p>The industrial waste management sector is facing serious issues, including an aging workforce and a lack of successors. With small and medium-sized enterprises accounting for half of the industry, intense competition and the burden of daily operations often hinder efforts to effectively address these challenges.</p>
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Solving Fundamental Challenges to Create Workplace Where People Want to Work

<p>Simple and Intuitive UI to Overcome Resistance to PC Use</p> <p>We prioritized creating a user-friendly interface, offering a standardized and straightforward screen design, thereby ensuring the platform is accessible to users of all ages, from younger employees to older staff.</p>	<p>Empowering Waste Management Companies to Drive Digital Transformation</p> <p>We have designed a system that enables even companies with low awareness of digital adoption to transition to electronic processes. By focusing not only on our direct clients (industrial waste management companies) but also on their clients (waste generators), we create mechanisms to drive behavioral change, aiming for transformation across the entire industry.</p>	<p>Reliable Support from Industry Experts from the Development to the Implementation Stage</p> <p>Our environmental preservation business is led by team members with extensive experience in the industrial waste management sector. Their expertise and knowledge are integrated into the services we offer. We have a deep understanding of the values and real needs of waste management companies, allowing us to deliver solutions that address fundamental challenges.</p>
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Our Commitment to DX

Empowering the Courage to Shape the Future through Digital Transformation

For those accustomed to paper-based operations, transitioning to digital systems requires great courage. Common concerns include resistance to changing established workflows, potential friction with clients, and doubts about being able to effectively using new systems. To address these concerns, we strive to make our systems as user-friendly as possible, enabling industrial waste management operators to navigate the transition with confidence. As systems become more user-friendly, more operators will be encouraged to embrace digitization. This, in turn, will inspire more businesses to follow suit, creating a ripple effect that spreads confidence, propelling the entire industry forward and catalyzing broader societal change. The courage of each individual involved in industrial waste management has the potential to create a powerful wave of transformation. Our services support the first courageous step into the future.



	Winner of the 2024 Good Design Award
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