Corporate Profile
At IHI Group, we design and build progressive engineering solutions for people and planet.
Our heritage is built upon a shared culture of striving for the highest standards in every facet of our business. This approach commits all relationships to our management philosophy of contributing to the development of society through technology.
We work alongside customers, stakeholders and fellow employees to deliver outcomes that positively affect the world and its inhabitants.
This powers our relationships to greater outcomes, and also makes good commercial sense. At our core, we are people who apply forward thinking to find lasting solutions to the toughest problems.
IHI Group. Realize your dreams.

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Historical Highlights

IHI helped pioneer Japan’s heavy industry. We started out by accumulating shipbuilding technology that we applied to industrial machinery, plant manufacturing and construction. Now we are a key provider of massive elements of industrial and social infrastructure.

Our products underscore our management philosophy of contributing to the development of society through technology.

1853
Ishikawajima Manufacturing Shipyard established to protect to invasion of western countries, after a fleet under U.S. Commodore Matthew Perry arrived. The shipyard was set up by an instruction from Japan’s feudal government.

1866
Completed the Chiyodamaru, Japan’s first steam-powered warship.

1876
Established Ishikawajima Hirano Shipyard

1897
Completed steel structures for Tokyo Central Station (now Tokyo Station)

1911
Produced the Ne20, Japan’s first jet engine.

1959
Established Ishikawajima do Brasil Estaleiros in Brazil

1960
Established Ishikawajima-Harima Heavy Industries Co., Ltd.

1978
Built the world’s first large-mounted pulp manufacturing plant specifically for Brazil

1990
IHI helped pioneer Japan’s heavy industry. We started out by accumulating shipbuilding technology that we applied to shipbuilding technology that we applied to

1997
Completed large shield tunneling machine for Tokyo Bay Aquaduct, with a diameter exceeding 14 meters, this machine dug a 280-meter tunnel under Tokyo Bay

2002
Delivered Japan’s first tower boiler

2004
Completed the Chiyodamaru, Japan’s first jet engine.

2007
Company name changed from Ishikawajima-Harima Heavy Industries Co., Ltd., to IHI Corporation

2013
Epsilon Launch Vehicle

2015
Reached total production of 50 million turbochargers for vehicles

2016
Osman Gazi Bridge, Turkey’s longest suspension bridge, opens to provide a crossing over Izmit Bay. Complementing Turkey’s Izmit Bay from east to west, the 1,550-meter structure is the world’s fourth-longest suspension bridge.


**IHI Corporation**

Corporate name change

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**1959**

Established Ishikawajima do Brasil Estaleiros in Brazil

This was the first Japanese-owned shipyard overseas and franchised the overseas expansion of Japanese companies.

**1960**

Established Ishikawajima-Harima Heavy Industries Co., Ltd.

This was the first of a major merger between two major shipbuilders: Ishikawajima Heavy Industries Co., Ltd. and Harima Shipbuilding & Engineering Co., Ltd., to lead in its sector.

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**IHI INFRASTRUCTURE ASIA**

Wuxi IHI Turbo

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**IHI Infrastructure Systems**

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**IHI VTN GmbH**

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**IHI Logistics System**

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**IHI INFRASTRUCTURE ASIA**

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**IHI INFRASTRUCTURE ASIA**

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IHI was established as the Ishikawajima Shipyard in 1853. We have since evolved into a comprehensive heavy industry manufacturer that can contribute to social progress by relentlessly pursuing technological excellence and by cultivating advanced engineering capabilities.

A Changing Social Environment
The social environment is changing faster than we envisioned. While rapid innovations in the Internet of Things, information and communication technology, artificial intelligence, and other digital technologies are transforming the industrial structure and work practices, social issues including global warming have been increasing. We are thus pushing ahead with efforts to materialize social sustainability by safeguarding the environment while pursuing social progress to tackle these challenges.

Becoming an Enterprise that can Contribute to Social Sustainability
Under such circumstances, the IHI Group formulated Group Management Policies 2019. This new management plan defined our approach to contributing to social sustainability from long-term perspectives by tackling social and customer issues and creating new value. Launched in fiscal 2019, this three-year initiative aims to materialize that objective by flexibly and suitably reorganizing our businesses while becoming an enterprise that can produce new value for society and our customers.

Three Business Transformation Initiatives
We are accelerating changes in three respects while reinforcing our management foundations by cultivating human resources as change drivers, pursuing safety and quality, and boosting risk management.

Accelerate aftermarket business development with customers from lifecycle perspectives
- We will involve ourselves closely in customer operations from overall lifecycle perspectives to reinforce the technological capabilities and expertise amassed in supplying hardware while accelerating the development of aftermarket businesses to help resolve customer challenges.

Create a lean and flexible operational structure
- We will optimally allocate people, funds, and other management resources to growth and priority areas and build a management structure that remains robust amid change.

Transform our business model to create value
- We will help materialize social sustainability by accelerating efforts to transform our business model to produce new value in the years ahead.

IHI launched Group Management Policies 2019 in fiscal 2019. Under this initiative, the IHI Group defined its approach to contributing to social sustainability from long-term perspectives in light of a changing social environment. To materialize that objective, it set about tackling social and customer issues, reorganizing businesses, and transforming itself during the three years of the plan into an enterprise that creates new value.

Long-Term Approach Under Group Management Policies 2019

Initiatives Under Three Years of Group Management Policies 2019

- Transformed hardware supply-centric businesses too slowly
- Downturns persisted in certain projects
- Continued to progress with concentration and selection

Business climate change
- Accelerate technological innovations
- Overall demand for infrastructure to materialize social sustainability

Further evolve initiatives of Group Management Policies 2016 to address increasing social issues

Group Management Policies 2019

Reform businesses in earnest to tackle social and customer issues

Three initiatives
- Strengthen business foundations
- Build a robust operational structure
- Accelerate preparations for tomorrow

Business climate change
- Accelerate technological innovations
- Overall demand for infrastructure to materialize social sustainability

Enhance operational efficiency
- Enhance customer value
- Contribute to social sustainability

Earnings growth
- Business scale growth
- Customer value
- Corporate value

Growing social issues
- Contribute to society, primarily by supplying hardware

Risk management
- Safety and quality
- Cultivate human resources as change drivers
- Accelerate technological innovations
- Overall demand for infrastructure to materialize social sustainability

2007 2013 2016
- Earnings growth
- Business scale growth
- Customer value
- Corporate value

Contribute to society, primarily by supplying hardware

IHI Group

IHI launched Group Management Policies 2019 in fiscal 2019. Under this initiative, the IHI Group defined its approach to contributing to social sustainability from long-term perspectives in light of a changing social environment. To materialize that objective, it set about tackling social and customer issues, reorganizing businesses, and transforming itself during the three years of the plan into an enterprise that creates new value.
Business Areas

IHI has four business areas, namely Resources, Energy & Environment Business Area; Social Infrastructure & Offshore Facilities Business Area; Industrial Systems & General-Purpose Machinery Business Area; and Aero Engine, Space & Defense Business Area. Its three shared Group functions are corporate business development & solution, intelligent information management, and global marketing & sales.

Resources, Energy & Environment Business Area

Contribute to carbon-free and recycling societies by providing optimal integrated solutions for each region and customer

- Halve carbon dioxide emissions of domestic and overseas customers by 2035
- Power systems
- Boilers
- Nuclear energy
- Plants
- Asian base EPC

Large-scale tower type boiler (Photo is provided by J-POWER (EPDC))

Social Infrastructure & Offshore Facilities Business Area

Contribute globally and across life cycles to materialize safe and secure social infrastructures, centered on bridges and tunnels

- Seek to provide social infrastructure that helps materialize optimal urban environments for tomorrow
- Bridges and watergates
- Shield systems
- Concrete construction materials
- Transport systems
- Urban development

Osman Gazi Bridge across Izmit Bay

Industrial Systems & General-Purpose Machinery Business Area

Contribute to industrial infrastructure progress by thoroughly optimizing operational lifecycles with customers

- Seek to create new industrial systems that comprehensively streamline customer human resources, energy, and assets
- Turbochargers for vehicles
- Parking
- Transport machinery
- Rotating machinery
- Heat treatment and surface engineering
- Logistics and machinery
- Agricultural machinery and small power systems
- Turbochargers for vehicles

Aircraft engines

Aero Engine, Space & Defense Business Area

Leverage advanced technology to open new vistas for air transportation, defense systems, and space utilization, and help materialize social comfort and safety

- Position ourselves as a key global aerospace industry player, drawing on unique technologies and manufacturing capabilities based on a robust quality assurance system
- Aircraft engines
- Rocket systems and space exploration
- Defense equipment and systems

GEnx turbofan engine

We will properly identify diversifying customer value and strengthen collaboration on shared Group functions while both business operation divisions and the shared Group functions co-create values to accelerate a transformation of our business model and create customer value.

Shared Group Functions

Corporate Business Development & Solution

Corporate business development & solution which is cross-department section resolves Group wide business issues and creates businesses in response to diversifying customer values and changes in the social environment.

Intelligent Information Management

The shared function “intelligent information management” takes the lead in driving IHI’s digital transformations with business areas and strategic business units, using the Internet of Things, artificial intelligence, machine learning, and other advanced information and communication technologies.

Global Marketing & Sales

Through integrating management of domestic and overseas sites, and promoting digital transformation efforts, we will accelerate reform of business models with the aim of dynamic global expansion of the IHI Group and enhancement of the customer value we provide.
CSR Activities

Meeting the expectations of society is an important corporate social responsibility for the Group. We will materialize social sustainability by endeavoring to satisfy all stakeholders, from customers, business partners, shareholders, and colleagues to communities everywhere to enhance our value as an entity.

CSR Structure

We established a CSR Committee in FY2013 to discuss and promote CSR-related matters, including basic Group policies and measures. The president chairs this committee, with the director in charge of CSR serving as vice chair. Committee members include directors and division heads.

CSR in Business Activities

The IHI Group helps materialize Sustainable Development Goals by providing products and services that foster economic development and environmental protection, contributing to social sustainability.

Environmental Activities

Part of the IHI Group’s mission is to reduce the ecological impact of its operations and protect the environment. Based on our action guidelines for environmental activities, we formulate plans every three years and undertake initiatives in line with our management policies.

Reduce environmental burdens through business activities

The Group offers a wide range of products and services that help resolve such environmental issues as climate change and resource recycling. We use exhibitions and our website to publicize ways in which our products and services help resolve environmental issues.

Factoring Biodiversity into Business Site Administration

About 71% of the Aioi Works is covered by vegetation that is home to a lot of flora and fauna, including rare species. We therefore ensure that the facility is sustainable plant by enabling people and nature to co-exist. In FY 2018, we adopted a construction method that uses materials derived from nature to prevent damage from landslides. Employees helped plant native species at the site that help safeguard from disasters and contribute to greenery.

In recognition of these efforts, we received the sixth certification from the Association for Business Innovation in harmony with Nature and Community.

Supporting Wheelchair Basketball

The IHI Group has been an official sponsor of the Japan Wheelchair Basketball Federation since 2015. We have held wheelchair basketball events for local residents at business sites around the nation, including exhibition match and games for people to experience playing basketball in wheelchairs. We also provide facilities for practice and training camps.

We will draw on our headquarters location in Tokyo, host of the 2020 Olympics and Paralympics, to contribute to the success of tournaments and the popularity of wheelchair basketball.

Community Service

The IHI Group provides value to society by making employees aware that they are part of society and by extending CSR beyond its operations.

We undertake various community service initiatives based on three priority themes.

Harmonizing with communities

- Holding events to engage with residents
- Conducting factory and construction site tours
- Introducing products and technologies
- Providing support in disaster-affected areas
- Supporting cultural and arts events

Cultivating tomorrow’s leaders

- Holding workplace experiential gatherings
- Accepting interns
- Holding manufacturing and science classes
- Supporting university scholarships
- Assisting research projects at universities and other institutions

Environmental protection

- Tree planting and thinning activities
- Environmental beautification activities
- Biodiversity initiatives
- Supporting cleanup activities by local governments and other entities

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For more information, please visit: http://www.ihi.co.jp/csr/english/
For realization of Group Management Policies 2019

—Strategies to create new value—

We aim to evolve into IHI group that directly tackles problems of society and customers. To realize the aim, in parallel with formulation of “Group Management Policies 2019" and business strategies in business areas, we formulated “Group IoT/ICT Strategy 2019" and “Group Technology Strategy 2019”.

Group IoT/ICT Strategy 2019

We set, on the main concept of “Group IoT/ICT Strategy 2019", to aim at “the creation of Customer Value and solution of social problems that only IHI can realize with the digital technology": Specifically, to realize the concept, we will promote digital transformation (hereinafter, DX) in business areas and prepare platforms for supporting DX. Along with the maximum use of IoT/ICT, we will attempt to use the data accumulated through lifetime business of IHI group and the data to be acquired from now on with AI/data analysis. Through these measures, we will tackle "problems of customers and society" such as manpower reduction, maximization of efficiency and optimization of operations from the point of view of the lifecycle.

We have declared “four changes”: “the change of business models,” “the change of manufacturing,” “the change of business operations,” and “the change of links.” And together with customers, we will attempt to do what only IHI can such as suggestion of new value, advanced manufacturing, and optimization of business processes. To realize the attempt, adding to various platforms, people capable to promote DX in addition to having a thorough knowledge of both customers’ sites and our products and service are required, therefore we have tried to train IoT/ICT-talented people. By further promoting these attempts, we will make an effort to create Customer Value and to resolve social problems through “people“ and “the digital technology”.

IHI creates Customer Value from the viewpoint of the lifecycle by thorough knowledge of customers’ sites and utilization of various internal and external data.

Group Technology Strategy 2019

The main concept of “Group Technology Strategy 2019“ is to break away from a conventional technology-oriented R&D and to transform into social-problem-oriented and customer-oriented technology development. We have slogans of “Struggle for society & customers challenge” and “Beautiful harmony by open innovation”. We create a new value through technology development in order to satisfy customers in many ways including quality through their longtime use of IHI products and service.

IHI group solves social problems through following plans of technology development.

(1) Provision of products and service based on evolved strong technologies

The major technology fields where IHI can fully show the strengths are high-speed rotating machineries, combustion/thermal/flow management, simulation technology, marriage of sensing and machinery data, materials engineering, and production technologies represented by welding. As for these technical fields, we will pursue further evolution and provide products and service that customers truly need.

(2) Evolution of products and services by IHI and customer harmony

Harmonizing with customers, we evolve products and service more valuable for customers. Moreover, we provide solutions applied to a new society like a new mobility society. We realize customers’ needs combining the technologies in IHI with new technologies such as systems engineering, design engineering, and serviceology in addition to AI-related technologies, sensing, and data analysis technologies in the open form.

(3) Provision of new values to society through co-creation with customers

In recent years, society takes a growing interest in safe and secure energy, particularly in production, smart use and various kinds of reuse. The electrification of vehicles and the automation of driving are global mega trends. Moreover, the shortage of manpower in various areas has become a serious problem. To overcome these problems and provide new values in societies and customers, we conduct the energy-related technology developments to achieve CO2-free society, and the technology developments related to the electrification and the automation.

Furthermore, we will steadily provide new values to society through installing and validating new technologies in infrastructure system to promote for regional creation and vitalization.

Outline of Group Technology Strategy 2019

<table>
<thead>
<tr>
<th>Provision of new values to society through co-creation with customers</th>
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<tbody>
<tr>
<td>1. To realize a low carbon society</td>
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<td>2. To manage energy, facilities and process for maximum efficiency</td>
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<tr>
<td>3. To realize safe and secure social infrastructure for smart city realization</td>
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<td>4. To provide solutions throughout the value chain by utilizing satellite data</td>
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Evolution of products and services by IHI and customer harmony

Combining the technologies in IHI with new technologies; Systems engineering, Design engineering, Serviceology, AI-related technologies, Sensing and Data analysis technologies

<table>
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<tr>
<th>Provision of products and service based on evolved strong technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To realize next-generation industrial platform with technology &amp; intelligence integration</td>
</tr>
<tr>
<td>2. To provide globally safe and secure social infrastructure according to regional characteristics and life cycles</td>
</tr>
<tr>
<td>3. To improve the value provided to customers in the zero-emission, defense and space by applying advanced technologies</td>
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Promoting further evolution and change; Major technology fields where IHI can fully show the strengths, Human resources and Eco system for development
CO₂ reduction in the field of aircrafts — efforts towards electrification of aircrafts

As the reduction of CO₂ emission from aircrafts becomes a globally important environmental challenge, More Electric Aircraft (MEAAP) attracts attention. The electrification of aircrafts eliminates the need for complicated hydraulic systems, pneumatic systems, and systems for energy supply. Consequently, the electrification of aircrafts enables not only the energy optimization but also the improvement of flexibility in design and maintainability, and making it possible to reduce aircraft mass. On the other hand, to realize the electrification (engine-embedded generator) of aircrafts, there are technologically difficult challenges: one is the installation of large capacity generators in engines; another is the heat-resistance of generator against exhaust heat of engine. To resolve these challenges, IHI has been developing the engine-embedded electric machine, autonomous distributed air cooling system, electric fuel system, and other devices and systems. Each development is in an advanced state of trial manufacture or evaluation test, and attains high reputations from aircraft manufacturers and aircraft parts manufacturers.

Embedded generator 
- High heat-resistant electric motor
- High density electric unit "Electric fuel system"
- Autonomous distributed air cooling system
- High voltage power distribution for aircrafts
- Electric fan
- DC power supply bus

Efforts towards laborsaving and automation in on-site transportation of heavy objects

Various industrial facilities perform frequent on-site transportation with vehicles. The example is transportation between production facilities and warehouses in plant sites or between unloading places and temporary depots in distribution centers. However, the recent shortage of drivers causes a concern that distribution system will become unsustainable.

Although there are various automation solutions for indoor distribution systems, there are few effective solutions for outdoor distribution systems. Accordingly, IHI has focused on outdoor on-site transportation of heavy objects. We have developed technologies of robots and unmanned vehicles in the fields of defense and disaster countermeasures, and have acquired actual traveling data through NEDO-supported projects. By utilizing these experiences, we have promoted development, practical implementation, and commercialization of transportation system automated by installing actuators, sensors, control/communication devices, and other devices on in-site vehicles including trailers.

IHI, a heavy industrial manufacturer, has the strength in integration of distribution system for large/heavy objects. We are aiming at contributing to improvement in laborsaving and efficiency not only on outdoor transportation of heavy objects but also on overall on-site distribution through integration of our automated transportation system under development into conventional distribution systems.

Data analysis technology for creating Customer Value

IHI offers new values to customers by accumulating and analyzing operation data of IHI products delivered to customers all over the world. We have two major strengths: one is the original data analysis technology based on findings developed through design, manufacture, R&D, and maintenance and service of our products. Another is the know-how to effectively apply the technology to actual products. Accordingly, we apply the technology to various IHI products. We have developed the technology for promptly detecting failure symptoms with high accuracy even if operating environment changes. In the field of failure prediction, change of operating environment like seasonal variation generally causes deterioration of detection accuracy. We also have developed the technology for utilizing experts’ know-how for maintenance by using text information like maintenance records as learning data for AI and machine learning. Adding to these two technologies, we have developed various data analysis technologies to result in creation of Customer Value.

We are monitoring the health diagnostics of IHI products on a 24-hour basis by accumulating operation data of IHI products all over the world and by analyzing the data through the failure diagnosis/failure prediction algorithm specially developed by IHI.
Evolution of products and services by IHI and customer harmony

Applying advanced technologies, we are promoting open innovation where we solve social and customers’ issues collaborating and harmonizing with customers. Through co-creation in three creative time and spaces below, and the collaboration with four global technology hubs in Boston, London, Singapore, and Shanghai, we accelerate the social issue- and customer-oriented technology development.

**IHI Tsunagu Lab (IHI innovation hub)**
IHI innovation hub was opened in October, 2014 as an IHI’s hub of open innovation. To realize customers’ dream we are co-creating with customers via technology matching.

**IHI Group Yokohama Labs**
This laboratory was opened in new experimental building in Yokohama district in May, 2019. It includes four areas: “Co-creation area”, “Garage”, “Open space” and “Project booth”. They offer creative time and space to accelerate co-creation with customers.

**IHI Launch Pad**
Hub for collaboration with startups, where diversity and value chain are attracted, was opened in December, 2019 at Silicon Valley in US.

**Evolution of fundamental and advanced technologies**
IHI has supplied the world with highly efficient and reliable coal-fired boilers that draw on its advanced technologies. With boilers based on our Clean Coal Technology, we contribute to the effective and economical use of valuable energy resources. We will continue to provide models employing coal and other fuels to customers around the world. We are augmenting flue gas treatment systems by pushing ahead with development to rapidly commercialize oxy-fuel combustion technology and CO2 chemical absorption technology that lowers carbon dioxide emissions. We are also working on gasification and pre-dry technologies for lignite, a low-grade coal.

Boilers

IHI supplies such key components as reactor pressure vessels, primary containment vessels, and piping systems. We develop and construct nuclear fuel cycle systems as well as supply components for conventional boiling water reactors (BWRs) and advanced boiling-water reactors (ABWRs). We also supply equipment for pressurized-water reactors (PWRs). Moving forward, we plan to engage in decontamination and decommissioning of nuclear power facilities.

Nuclear energy

IHI supplies key components as reactor pressure vessels, primary containment vessels, and piping systems. We develop and construct nuclear fuel cycle systems as well as supply components for conventional boiling water reactors (BWRs) and advanced boiling-water reactors (ABWRs). We also supply equipment for pressurized-water reactors (PWRs). Moving forward, we plan to engage in decontamination and decommissioning of nuclear power facilities.
Gas turbines, Gas engines & Diesel engines
IHI provides a wide variety of power generating products, including gas turbines, diesel engines and gas engines with simple cycle, co-generation and combined cycle power systems. We also provide remote monitoring, maintenance and other services throughout product lifecycles. We are minimizing NOx and CO2 emissions by adopting high-efficiency, low emission technologies. We supply gas turbines for high-speed ships and other marine vessels. We also supply a wide range of diesel engines, from large engines of medium and low speeds to small and midsize models of low, medium, and high speeds.

propulsion systems
Our Z-PELLER® is the most propulsion system in the global tugboat market, and has earned an outstanding customer reputation for its high quality and durability. The diverse other applications for this system include fireboats, oil skimmer boats, and other disaster prevention vessels, as well as floating cranes, dredgers, drill rigs, and support vessels.

Grid scale energy storage system
IHI provides turnkey solutions for grid scale energy storage system, centered on its ESWare suite of advanced control systems.
(1) Analysis: Evaluating project profitability before project deployment and optimizing system configuration
(2) Control: Managing systems in real time in line with customer requests and optimisation directives
(3) Optimization: Formulating operational strategies to optimize profitability based on past operational results and weather, load, and other forecasts

LNG receiving terminal / storage tank
IHI is Japan’s leading provider of LNG receiving terminals and storage tanks. We are also active overseas, with a strong track record in India, Qatar, Mexico, Taiwan, the United States, and China. Particularly for LNG storage tank construction, we are able to handle all types of tanks including Double-walled metal tank, Pre-stressed concrete (PC) full containment tank and in-ground membrane tanks, with leading global market shares for such facilities.

processing & pharmaceutical plants
In such diverse areas as natural liquefaction plants and oil refining, petrochemicals, LPG, and other process plants, and pharmaceuticals plants, we have a strong track record in Japan and internationally in integrating everything from construction engineering to equipment procurement, construction, and startups.

Equipment for plants
We provide a wide line-up of plant equipment, including heating furnaces, cooling towers, chemical plant reactors, and wastewater treatment facilities.
Social Infrastructure & Offshore Facilities Business Area

**Bridges, Water gates & Steel structures**

IHI has constructed numerous major bridges worldwide. Included are the Seto Ohashi Bridges and the Akashi Strait Bridge in Japan, the Second Bosporus Bridge and the Golden Horn Bridge in Turkey, the Canavirmez Bridge in the United States, and the Binh Bridge and the Nhat Tan Bridge in Vietnam. We are Japan's top manufacturer of water gates for rivers and dams. Our capabilities extend from manufacturing and installation to inspection and maintenance. We contribute to water usage and flood control projects in Japan and overseas, particularly in Southeast Asia. We deliver large steel structures incorporating machinery and put a focus on the increase of hybrid structures, including caissons and pontoons that combine the strengths of steel and concrete. We have integrated steel structures, mechanical, sensor, control, and other technologies to develop active mass dampers and seismic isolation floor systems. These systems serve important disaster prevention roles in high-rise buildings and computer centers.

**Main Products**
- Bridges
- Water gate equipment for rivers
- Water gate equipment for dams
- Floating breakwaters
- Floating platforms
- Immersed tunnels
- Hybrid caissons
- Composite slabs
- Sound-absorbing panels
- Temporary assembling bridges
- Mass damper systems
- Seismic isolation floor systems

**Transportation systems**

IHI contributes to traffic safety, which is essential for daily life, in various ways. Furthermore, we supply various railway systems, including ultra-low floor streetcars, which are human- and environment-friendly and essential for building new towns, diesel cars to ensure local traffic, and maintenance vehicles to keep railway systems running.

**Main Products**
- Transportation systems
- Streetcars
- Snowplows
- Maintenance vehicles

**Shield tunneling machines & Concrete construction materials**

IHI developed the world’s largest shield and rotating shield tunneling machines, which have greatly improved construction efficiency. IHI is the world’s leading supplier of automatic segment assembling systems while also providing various types of segments.

**Main Products**
- Shield tunneling machines
- Segment
- Automatic segment assembling systems

**Cable-stayed bridge “Nhat Tan Bridge”**

**River gate**

**Sanriku Railway Riasu Line**

**206 series New Tram system for the Osaka Municipal Transportation Bureau’s High Speed Electric Division**

**IKK Composite Segment**

**IHI Corporate Segments**
Urban development
We optimize the potential of our real estate holdings by redeveloping company offices and housing nationwide. We engage in leasing and sales, particularly in metropolitan Tokyo. A good example of this approach is in Toyoeu, known for former shipbuilding yards, where we are undertaking a massive urban redevelopment project. We also prioritize using idle land, as part of which we operate Japan’s biggest mega solar generating business, in Kagoshima, thereby contributing to environmental and social sustainability.

Security
At IHI, we are releasing various products that apply mechatronics and sensor technologies. Our 3D Laser Radar level crossing obstacle detection system, has been installed at more than 2,000 level crossings worldwide. IHI continues exploring future sensor business fields. We also supply large X-ray visual inspection systems for cargo containers, for which IHI is the domestic market leader. We have a wealth of delivery experience, including medium and small size inspection equipment for port and airport customs inspections.

Industrial Systems & General-Purpose Machinery Business Area
Parking systems
Since installing Japan’s first tower parking system in 1982, IHI has drawn on its experience, reliability, and proprietary technology to perfect these products. We look to introducing parking systems with smaller environmental footprints as well as other new types of parking system. We will continue to provide optimal parking solutions in the years ahead.

Materials handling system
IHI has remained a technology leader in this field for a century. We accommodate needs ranging from under one metric ton to thousands of metric tons. Our offerings include bulk handling systems, such as port unloaders. Through standardisation, we have increased economy with jib and overhead travelling cranes for various industries. We leverage advanced technologies in manufacturing through maintenance and modifications. We are a top supplier of jib climbing cranes for skyscraper and dam construction.
Rotating machinery
IHI provides an array of compact and packaged machinery for plant utilities. Our offerings include separators, filters, dewatering equipment, and air compressors. We have many years of expertise from custom manufacturing compressors, and our liquefied natural gas BOG plant compressors dominate the market. Our organic rankine cycle power generator can produce electricity from water with temperatures ranging from 70°C to 95°C, helping customers to conserve and create energy.

Separators
Filters
Compressors
Organic rankine cycle power generator

Main Products
- Screw Decanter Centrifuge
- Process reciprocating compressor
- Organic rankine cycle power generator

Factory solutions
In addition to providing the world’s highest level of industrial machines such as automated panel transport equipment, rubber and film forming machines, slitters, etc., we are contributing to the improvement of productivity through proposals for automation of entire factories by linking these facilities.

High-speed transfer feeder (X-Feeder)
Hybrid regenerative cushion system
Retrofit
Rubber and film calender machines
Creel auto-loading system
Aluminum/Copper foil slitter

Main Products
- High-speed transfer feeder (X-Feeder, V-Feeder)
- Hybrid regenerative cushion system
- Retrofit
- Rubber and film calender machines
- Creel auto-loading system
- Slitter

Logistics systems
The rapid development of e-commerce markets has led to serious labor shortages in the logistics industry, driving demand for advanced automated logistics operations. We maintain an array of automatic storage system capable of storing frozen and chilled goods up to -60°C, hazardous goods, and other variety of goods. We also provide storage and transportation equipment operating in clean rooms and AI depalletizing systems. We provide customized logistics solutions that draw on our expertise which will best suit on user’s needs.

Screw Decanter Centrifuge
IHI-FUNDABAC Filter
IHI-Leaf Filter

Main Products
- Frozen AS/RS (Automated Storage & Retrieval System)
- LGF (Laser Guided Forklift)
- AI depalletizer system

Main Products
- Automated material handling systems in clean rooms
- Storage systems
- Transportation systems
- Sorting / picking systems

IHI supplies a wide range of turbochargers from large ones for land and marine power generators to small ones for automobile engines, and has already produced more than 75 million turbochargers for vehicles. We have development, production, and sales bases also in the U.S., Europe, Thailand, China, and Korea and are growing our business worldwide.

Turbochargers
IHI-FUNDABAC Filter
IHI-Leaf Filter

Main Products
- Turbochargers
- Turbochargers for vehicles
- Turbochargers for marine vessels

Main Products
- Turbochargers
- Turbochargers for vehicles
- Turbochargers for marine vessels
Heat treatment and Surface engineering

Heat treatment processes and equipment are used in many industries. IHI supplies an array of equipment to meet user needs. Our heat treatment equipment offerings include vacuum furnaces, vacuum carburizing furnaces, vacuum vapor degreasers, hot presses, sintering furnaces and new materials manufacturing facilities. In addition to supplying equipment, IHI itself maintains a heat treatment processing business. We also provide advanced coating solutions featuring a broad range of hard, low friction, wear resistant or corrosion resistant coatings based on PVD, PACVD and CVD technologies for aerospace, medical, automotive, decorative and tooling applications, and MScot® an innovative technology that uses an electrode discharge process.

IHI supports agriculture with machinery for cultivating, fertilizing, seeding, harvesting, and other tasks. Our lawn maintenance machines, grass cutters, and campus greening equipment help maintain landscapes and lawns at an array of sports facilities. They include golf courses, soccer, baseball, and athletic fields, and racetracks. Our equipment is also utilized heavily at schools, parks, riverbanks, and homes. Our products serve in hospitals, clinics, nursing homes, hotels, restaurants, airports, train stations, and factories. We manufacture ozone deodorizers and disinfectors, accommodating rising demand for deodorization, sanitation, dust removal, and cleaning applications. In addition, we are accommodating diverse customer needs by supplying compact packaged boilers that deliver heat and steam to factories and other facilities.

Iron, Steel and Coke-making equipment

PWHi offers state-of-the-art technologies for the primary stage of integrated steelmaking (mainly blast furnaces and coke oven plants), ranging from engineering to a full spectrum of EPC (Engineering, Procurement and Construction). Since 1941, IHI has built and relined over 90 blast furnace plants in and outside of Japan. Backed by a wide range of experience of Paul Wurth Group (Luxembourg), a number of our coke oven plants have been adopted by Japanese customers.

Pulp & Paper machinery

IHI is Japan’s premier maker of pulp and paper manufacturing machinery, supplying papermakers with the largest and fastest paper-making and paper-coating machines. We have an unmatched record overseas as well as in Japan.

Agricultural machinery, Life associated equipment, and Packaged boilers

IHI supports agriculture with machinery for cultivating, fertilizing, seeding, harvesting, and other tasks. Our lawn maintenance machines, grass cutters, and campus greening equipment help maintain landscapes and lawns at an array of sports facilities. They include golf courses, soccer, baseball, and athletic fields, and racetracks. Our equipment is also utilized heavily at schools, parks, riverbanks, and homes. Our products serve in hospitals, clinics, nursing homes, hotels, restaurants, airports, train stations, and factories. We manufacture ozone deodorizers and disinfectors, accommodating rising demand for deodorization, sanitation, dust removal, and cleaning applications. In addition, we are accommodating diverse customer needs by supplying compact packaged boilers that deliver heat and steam to factories and other facilities.
Rocket systems & Space exploration

IHI has participated in Japan’s space development effort from the outset. We have applied our cryogenic-pump and turbomachinery and other technologies to develop and manufacture the turbopumps and gas-jet systems crucial to successful rocket launches. Our involvement in Japan’s space program expanded significantly in 2000, when we acquired Nissan Motor’s Aerospace Division, a pioneer in solid-fuel rocket development in Japan. We play an important role in developing and constructing theExposed Facilities of the KIBO Japanese Experiment Module, which is a part of the International Space Station program. We support experiments in space by supplying experimental systems needed for cooperative international projects.

Main Products
- Rocket
- Rocket propulsion systems
- Rocket control systems
- Satellite propulsion systems
- Satellite control systems
- Equipment for utilization of space environment
- Space station-related equipment
- Ground test facilities
- Ground support facilities

Aero Engine & Space & Defense Business Area

IHI is Japan’s leading maker of jet engines, with a market share of between 60% and 70%. We are the primary contractor and manufacturer for aircraft engines used by the Ministry of Defense. We collaborate in international projects to develop and supply large and small engines for all types of civilian aircraft. We have leveraged our experience and manufacturing technologies to provide maintenance for all types of engines. We are considered Asia’s core maintenance center. To meet the growing demand for eco-friendly engines and fulfill our corporate responsibility, we are developing next-generation engines that draw on our advanced technologies.

Aircraft engines

IHI is Japan’s leading maker of jet engines, with a market share of between 60% and 70%. We are the primary contractor and manufacturer for aircraft engines used by the Ministry of Defense. We collaborate in international projects to develop and supply large and small engines for all types of civilian aircraft. We have leveraged our experience and manufacturing technologies to provide maintenance for all types of engines. We are considered Asia’s core maintenance center. To meet the growing demand for eco-friendly engines and fulfill our corporate responsibility, we are developing next-generation engines that draw on our advanced technologies.
Domestic Network and Main Works  As of March 31, 2019

- **Offices**
  - Headquarters Representatives’ Office, Aichi District
  - Headquarters Representatives’ Office, Aioi District
  - Corporate Research & Development

- **Works**
  - Akishima Office
  - Head Office
  - Aioi Works
  - Mizuho Aero-Engine Works
  - Soma No. 1 Aero-Engine Works
  - Soma No. 2 Aero-Engine Works
  - Yokohama Works
  - Toyota Office
  - Headquarters Representative’s Office, Aichi District

- **Branches and Sales Offices**
  - Chubu Branch
  - Chugoku Branch
  - Chugoku Branch
  - Chugoku Branch
  - Hokuriku Branch
  - Kansai Branch
  - Kyushu Branch
  - Shikoku Branch

- **Site Areas**
  - Akishima Office: 311,673 m²
    - Products & Services: Reactor pressure vessels, containment vessels, heat exchangers, piping for nuclear power plants
    - Certifications: ASME (II, NPT, NA, AN, U, U2, SISO 3081, ISO 14001
  - Soma No. 1 Aero-Engine Works: 192,629 m²
    - Products & Services: Parts of jet engines, gas turbines and space development equipment
    - Certifications: JIS (9900, 9901), ISO (9001), FAA Repair Station, SAMA Maintenance Organization
  - Soma No. 2 Aero-Engine Works: 181,673 m²
    - Products & Services: Parts of jet engines, gas turbines and space development equipment
    - Certifications: JIS (9900, 9901), FAA Repair Station, SAMA Maintenance Organization
  - Yokohama Works: 226,671 m²
    - Products & Services: Reactor pressure vessels, containment vessels, heat exchangers, piping for nuclear power plants and nuclear power plant and nuclear radiation management field, decontamination field, large pressure vessels, steel structures, shield machines and other industrial machinery
    - Certifications: ASME (II, NPT, NA, AN, U, U2, SISO 3081, ISO 14001
  - Aliso Works: 246,325 m²
    - Products & Services: Boilers, LNG tanks, pressure vessels for chemical plants, prefabricated piping systems and casting products for machinery
    - Certifications: ISO 9001, ISO 14001, ASME (S, U, U2) Approval of Manufacturer
  - Kure Aero-Engine & Turbo Machinery Works: 417,972 m²
    - Products & Services: Parts of gas turbine power plants, jet engines and gas turbines
    - Certifications: JIS (9900, 9901), FAA Repair Station, SAMA Maintenance Organization

- **Headquarters Representatives’ Office, Aoi Area**
  - 5292, Aioi, Aioi-shi, Hyogo 678-0041
  - TEL: +81-791-24-2206

- **Headquarters Representatives’ Office, Kure District**
  - 2-1, Showa-cho, Kure-shi, Hiroshima 737-0027
  - TEL: +81-823-26-2105

- **Corporate Research & Development**
  - 1, Shin-Kakuda-cho, Kure, Hiroshima-shi, Higashi 737-0857
  - TEL: +81-822-33-2105

- **Site Area**
  - 226,671 m²
  - Products & Services: Reactor pressure vessels, containment vessels, heat exchangers, piping for nuclear power plants and nuclear radiation management field, decontamination field, large pressure vessels, steel structures, shield machines and other industrial machinery
  - Certifications: ASME (II, NPT, NA, AN, U, U2, SISO 3081, ISO 14001

- **Headquarters Representatives’ Office, Aichi District**
  - 3-1, Kikamazawa, Chita-ku, Aichi-674-8800
  - TEL: +81-562-31-8024

- **Headquarters Representatives’ Office, Aioi District**
  - 5292, Aioi, Aioi-shi, Hyogo 678-0041
  - TEL: +81-791-24-2206

- **Corporate Research & Development**
  - 1, Shin-Kakuda-cho, Kure, Hiroshima-shi, Higashi 737-0857
  - TEL: +81-822-33-2105

- **Headquarters Representatives’ Office, Kure District**
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  - TEL: +81-823-26-2105

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  - 1, Shin-Kakuda-cho, Kure, Hiroshima-shi, Higashi 737-0857
  - TEL: +81-822-33-2105
Main Group Affiliates and Works in Japan

Resources, Energy & Environment Business Area

Airmax Plant Co., Ltd. Renewing and maintenance in repracking facility etc.

HI Plant Services Corporation Services related to the engineering, procurement, construction, commissioning, and maintenance of Thermal Power Plants, Renewaee energy, Storage Facilities, Oil & Gas Plants, Chemical Plants, Pharmaceutical Plants, Nuclear Power Plants, Industrial Machinery and other types of equipment and facilities

HI Power Systems Co., Ltd. Manufacturing, sale and other services for diesel engines for marine, power generation and oil-field service, gas engines, dual fuel engines, gas engines, and other products

Kotobuki Iron Works Co., Ltd. Site Area 19,000 m²

HI Construction Mates Corporation Manufacturing and introduction of pre-cast concrete members

HI Construction Services Co., Ltd. Engineering, maintenance and repair of bridges, gates and steel structures, pre-stressed concrete product manufacturing and construction work design, execution, etc.

HI Infrastructure Systems Co., Ltd. Design, fabrication, construction, diagnosis, repair, and conservation of bridges, floodgates, and other street structures, and manufacture, sale, and installation construction of disaster prevention devices

JNM TECHNOLOGY CORPORATION Design and sale of naval lasering machines and equipment

Lincom Engineering Co., Ltd. Patent management and supervision for construction materials

Nippon Trary Co., LTD Manufacturing and sale of rolling stock, industrial machines, cranes, etc., and design, manufacture, and construction of railway equipment

San-Etsu Co., Ltd. Site Area 98,512 m²

Choke Warehouse Co., Ltd. Warehousing, real estate rental, and peripheral businesses

Industrial Systems & General-Purpose Machinery Business Area

Oficentral Corporation Company Ltd. Engineering, manufacturing and sale of large equipment and industrial machinery

Clover Turbo Co., Ltd. Realize design, manufacture, sales and service of aftertreatment technologies

HI AgriTech Corporation Engineering and manufacturing of agro-related machinery and equipment

Aero Engine, Space & Defense Business Area

HI Packaging Boiler Co., Ltd. Provides wide series of general-purpose boilers, related equipment and maintenance services

HI Makino Machinery Co., Ltd. Manufacturing and maintenance services for compressors and other rotating machinery

HI Technical Training Institution Construction machinery and crane operator training

HI Transport Machinery Co., Ltd. Pneumatics, design, manufacture, sales, lease, instillation, maintenance, remodelling, management services of piping systems and aerial ropeway system

HI Aeropace Co., Ltd. Design, manufacture and sales of space equipment and defense machinery, and manufacture and sales of aircraft engine parts

HI Inspection & Instrumentation Co., Ltd. Inspection and measurements of parts and components. Chemical and environmental analysis. Development, engineering, design, manufacture, and installation of control and measuring systems including various types of testing equipment and automatic environmental inspection and measurement equipment

HI Kato Co., Ltd. Development, manufacture and sales of railroad systems related to information and communications, engineering, manufacturing, and others. Management service of computer systems operation maintenance

HI TRADING, INC. Sales of equipment and machinery,putputs, parking equipment, concrete products, robotic solutions, and other products

MEISEI ELECTRIC CO., LTD. Manufacture and sales of devices used for telecommunication, electronics, electrical measuring, and information processing etc., construction design, contracting, and other incidental services, etc.

MEISEI MANAGEMENT SERVICE CO., LTD. Specialized technical services, land and property clearing, maintenance and security services, etc.

Sales Development Co., Ltd. Management of golf courses

Takashima Giken Co., LTD. Design, manufacture, sale, installation, repair and maintenance of various types of new destruction inspection equipment

Topray Energy Service Co., Ltd. Supply business operation, electric power, steam, hot water, and air conditioning

MEISEI INSTRUMENTATION CO., LTD. Inspection and measurements of parts and components. Chemical and environmental analysis. Development, engineering, design, manufacture, and installation of control and measuring systems including various types of testing equipment and automatic environmental inspection and measurement equipment

MEISEI TRADING, INC. Sales of equipment and machinery,putputs, parking equipment, concrete products, robotic solutions, and other products

HI Business Support Corporation Real estate management, insurance agency business and data processing services and more

Others
Company Profile (as of March 31, 2019)

- Year of establishment: 1853
- Capital: 107,165 million yen
- Number of employees (on consolidated basis): 29,286
- Works: 6
- Branches in Japan: 8
- Overseas representative offices: 14
- Affiliated companies in Japan: 69
  - Subsidiary companies in Japan: 50
  - Affiliated companies in Japan: 19
- Overseas affiliates: 148
  - Overseas affiliated companies: 123
  - Associated companies overseas: 25

Net Sales

- Consolidated net sales (millions of yen)
  - Fiscal 2018: 1,483,442
  - Fiscal 2017: 1,590,333
  - Fiscal 2016: 1,486,332
  - Fiscal 2015: 1,539,388
  - Fiscal 2014: 1,455,844

Consolidated sales by business areas in fiscal 2018

- Resources, Energy & Environment: 25%
- Social Infrastructure & Offshore Facilities: 10%
- Industrial Systems and General-Purpose Machinery: 30%
- Aero Engine, Space & Defense: 35%

Note: The total may not be 100% owing to the inclusion of "Other" and "Adjustments".

Websites

See our websites for other details.

IHI website
https://www.ihi.co.jp/en/

Investor relations information
https://www.ihi.co.jp/en/ir/

CSR information
https://www.ihi.co.jp/csr/english/index.html

Technology information
https://www.ihi.co.jp/en/technology/