Value Creation Initiatives

The azbil Group's business units are committed to the ceaseless creation of value through automation. The pages that follow introduce the Group's business segments and the current status of their activities, and provide an overview of the Group's unique initiatives focused on the entire value chain—from development to manufacturing, sales, engineering and installation, and maintenance service—which is deployed globally.

At a Glance

BA Building Automation Business

Using original environmental control technologies to deliver comfort, functionality, and energy savings required by all buildings, we help create comfortable and efficient office and production spaces and reduce environmental impacts.

AA Advanced Automation Business

We develop advanced measurement and control technologies for factories and plants to help create production sites in which people can safely demonstrate their abilities. Through collaboration with our customers, we will create new levels of value.

LA Life Automation Business

We apply our measurement and control technologies and services, amassed over many years in the BA and AA fields, to lifeline utilities such as gas and water, residential central air-conditioning systems, life science research, pharmaceuticals, and other sectors to help people enjoy active lifestyles.
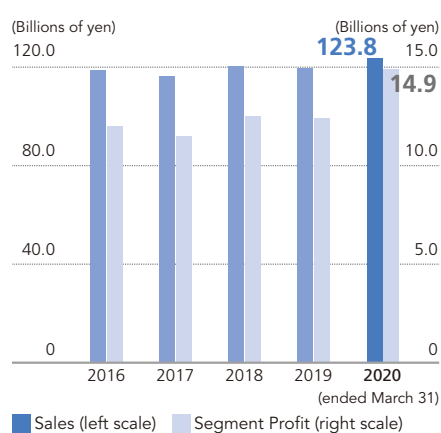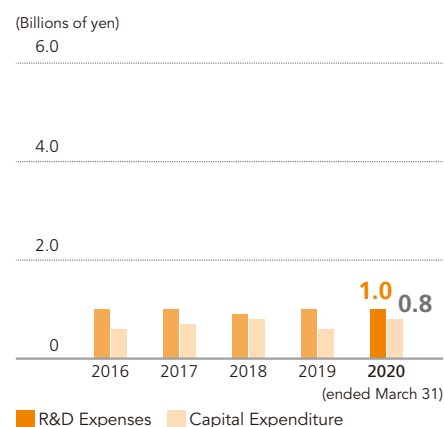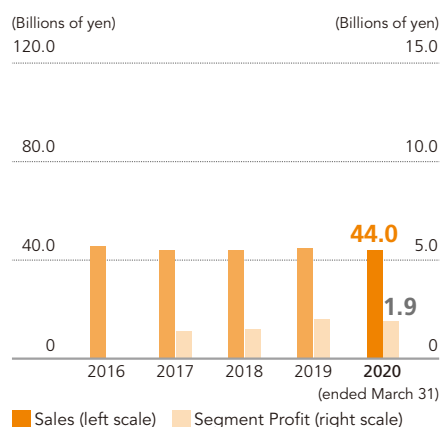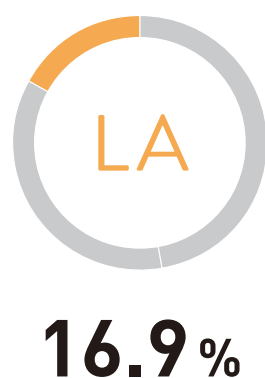
Share of Net Sales by Segment	Sales, Segment Profit (Operating Income)	R&D Expenses, Capital Expenditure

BA

47.4 %

(Billions of yen)
120.0

(Billions of yen)
15.0

123.8

14.9

80.0 — 10.0

40.0 — 5.0

0 — 0

2016 2017 2018 2019 **2020**
(ended March 31)

■ Sales (left scale) ■ Segment Profit (right scale)

(Billions of yen)
6.0

5.1

4.0

2.0

1.8

0

2016 2017 2018 2019 **2020**
(ended March 31)

■ R&D Expenses ■ Capital Expenditure

AA

35.7 %

(Billions of yen)
120.0

(Billions of yen)
15.0

80.0 — 10.0

93.2

10.5

40.0 — 5.0

0 — 0

2016 2017 2018 2019 **2020**
(ended March 31)

■ Sales (left scale) ■ Segment Profit (right scale)

(Billions of yen)
6.0

5.8

4.0

2.0

2.3

0

2016 2017 2018 2019 **2020**
(ended March 31)

■ R&D Expenses ■ Capital Expenditure

LA

16.9 %

(Billions of yen)
120.0

(Billions of yen)
15.0

80.0 — 10.0

44.0

40.0 — 5.0

1.9

0 — 0

2016 2017 2018 2019 **2020**
(ended March 31)

■ Sales (left scale) ■ Segment Profit (right scale)

(Billions of yen)
6.0

4.0

2.0

1.0

0.8

0

2016 2017 2018 2019 **2020**
(ended March 31)

■ R&D Expenses ■ Capital Expenditure

Business Introduction, Business Overview

Building Automation (BA) Business

Business Fields: Office buildings, hotels, shopping centers, hospitals, schools, research laboratories, factories, data centers, government offices, airports, etc.

Spreading BA systems throughout Japan

➡ **A pioneer in the field of air-conditioning control systems for Japanese large-scale buildings**

New installation   **Service**   **Retrofit of buildings**

➡ **Service lineup tailored to the life cycles of buildings**

Analysis using cloud and AI

➡ **Comfort and energy savings based on networks and accumulated data**

Using advanced air-conditioning control technologies to provide indoor environments that combine comfort and energy conservation

Our Building Automation (BA) business provides a variety of products and services necessary for air-conditioning control of office buildings and other large-scale buildings, based on an integrated system ranging from development, manufacture, and sales of products and systems to engineering, installation, and maintenance services. We deploy our advanced automated air-conditioning control—combining control systems and application software for air-conditioning facilities with various devices (controllers, valves, and sensors)—and our proprietary environmental control technologies that create business and production spaces where people can work safely, efficiently, and in comfort, and that contribute to reducing environmental impacts. Using our strength in providing total solutions covering the life cycles of buildings, we foster safe operation and increasing the asset value of our customers' buildings over the long term. Our solutions range from construction of new buildings to maintenance services, retrofit of existing buildings, and energy-saving solutions.

Life Cycle of Buildings and Values Delivered by Building Automation Business
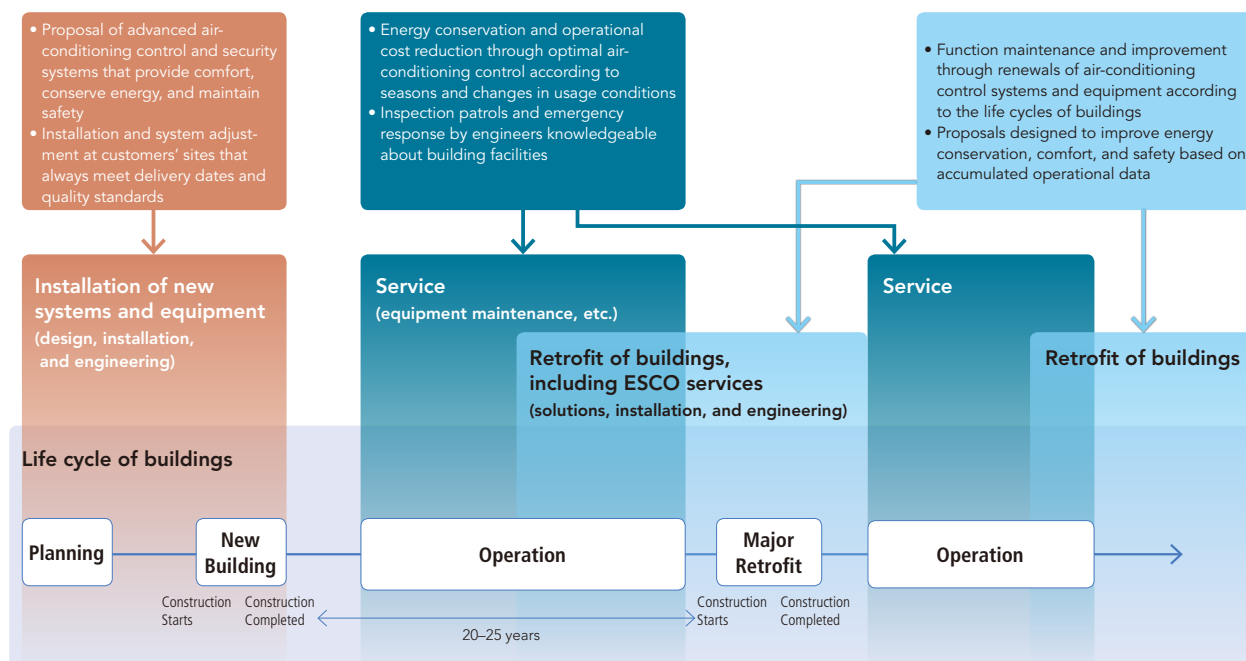
Management and maintenance of wide-area building clusters

Maintenance

Energy management

Proposal of optimal operation of buildings

Proposal of building renovation

Provision of services customized for life cycles by integrating building automation with new technology such as IoT

Detecting

Sensor and Measurement Devices

Sensing and measurement of room temperature/humidity

Room temperature/humidity sensor

Room temperature/humidity controller

Ceiling-mounted temperature sensor (Round-type)

Cloud service for buildings

Cloud

Setting

User-operated Devices

Building users can set the temperature, humidity, and other variables

Digital setting device

Digital central control

Managing

Building Automation Systems

Monitoring and management of the indoor environment, security, equipment, and energy usage throughout the building
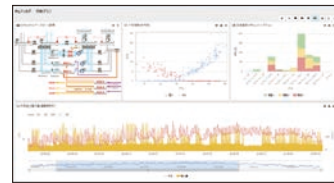
Building Automation (BA) system

Wall-mounted BA system

BA system for small buildings

Protecting

Security Systems

Controlling access to building commons and interiors

Access control system

Contactless smartcard reader

Controlling

Regulators and Controllers

Control of building facilities and instruments to keep them in an optimal state

Controller for air conditioning equipment

Heating/cooling plant controller

Compact remote I/O module

Adjusting

Valves/Actuators

Optimal adjustment of the flow rates of hot/cold water or steam used in buildings

Motorized control valve with flow measurement and control functions

Direct coupled damper actuator

Development and production of central monitoring systems and automatic control instruments for buildings, as well as applications that support the management of buildings

BA

Aiming to further increase profits, we will promote business process reforms and other initiatives while providing solutions that contribute "in series" to the SDGs in response to the "new normal" era.

Sales

¥123.8 billion

(up 3.6% year on year)

Segment profit

¥14.9 billion

(up 19.9% year on year)
(Segment profit ratio 12.0%)

- Sales for new large buildings made a solid contribution to segment sales.
- Segment profit increased significantly thanks to higher profitability, as well as the absence of one-time provisional expenses recorded in the previous year.

Kazuyasu Hamada
Director
Managing Executive Officer
President of Building Systems Company
Azbil Corporation

Building Automation

Operating Environment

In fiscal year 2019, ended March 31, 2020, the domestic market environment for our BA business remained healthy. In addition to urban redevelopment plans for the Tokyo metropolitan area, we enjoyed strong demand for solutions related to saving energy and reducing operational costs. In overseas markets, we benefited from continued investment of domestic and foreign capital in large-scale buildings in the Asian region, but there were signs of some investment reticence triggered by U.S.-China trade friction and other factors.

Review for fiscal year 2019

In this environment, we worked hard to secure orders with an emphasis on profitability. At the same time, we sought to enhance our job execution capabilities and efficiency, especially on sites, to meet the requirements of the

Japanese government's work style reforms. We also made progress in developing and strengthening our products and services to better meet the needs of domestic and overseas clients who are keen to harness IoT and other technologies.

For the year, orders received totaled ¥122.9 billion, down 0.7% from the previous year when large-scale service projects covering multiple years were recorded. This was despite growth in orders in fields related to sales and installation of equipment and systems for new large-scale buildings, reflecting a robust market environment. Sales rose 3.6% year on year, buoyed by an increase in the field related to new large-scale buildings. Segment profit jumped 19.9%, benefitting from increased revenue and the success of initiatives designed to improve profitability, as well as the absence of one-time provisional expenses recorded in the previous fiscal year.

Outlook

As for the medium- to long-term outlook for the BA business environment, plans are under way for large-scale redevelopment projects, as well as numerous retrofit projects for large-scale buildings, in 2020 and thereafter. Leveraging our track record, we will aim to capture and translate this demand into increased revenue through our steady job execution. We will also implement business process reforms and other initiatives aimed at further solidifying our high profit structure. In addition, we will reorganize our job execution processes and promote the adoption of IT using BIM* and other technologies, while emphasizing efficient and systematic deployment of human and various other resources. At the same time, we will strengthen our products and functions and differentiate ourselves by integrating our products and services—the key strengths of the azbil Group—to further reinforce our competitiveness. To strengthen our products, we will promote open innovation, including collaboration with other companies, to build a new business model utilizing cloud, AI, and other innovative technologies.

Overseas, we will aim to expand our share of the Asian market. Here, we will demonstrate the strengths of our domestic business model (energy-saving applications and engineering and service capabilities), centered on our building automation system, while implementing measures according to the business environment and infrastructure of each country. We will also focus on the market for our

stock business as a way to gradually strengthen our life cycle business model.

The onslaught of COVID-19 in 2020 led to temporary delays in some construction work in our BA business. However, the impact has been limited, so we will continue forging ahead while giving full consideration to the safety of customers and employees. The spread of COVID-19 has given rise to a new social challenge, which is how to balance economic activities while facing a pandemic. We believe that the role of the azbil Group's BA business should be to provide highly productive environments where people can work with peace of mind in response to the "new normal" era. One example of the Group's value creation is a centralized air conditioning system that provides high ventilation efficiency and safety in indoor environments, a technology capable of delivering both comfort and energy efficiency. In addition to this technology, we will also roll out various other offerings, including a non-contact face authentication and temperature detection system for safety assurance and an infrared array sensor system to ensure social distancing.
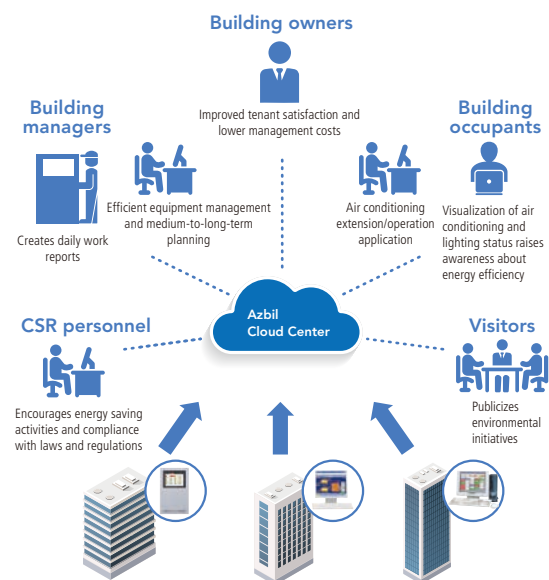
* BIM (building information modeling): A solution that utilizes information in every process of a building project, from architectural design and construction to maintenance. It uses a digital model of a three-dimensional building, created on a computer, to compile a building database covering costs, finishing requirements, management information, and other attribute data. It enables the construction business operations to be streamlined by drawing on information stored in the model covering the entire building life cycle—from design to construction and maintenance.

Close Up

Cloud service for buildings

Using the latest IoT technology to streamline building management operations while also improving convenience and work environments for tenants

Our cloud service for buildings enables everyone involved in a building—not only owners but also tenants and building managers—to access services that meet their specific purposes. For building owners and managers, it helps increase efficiency of the energy and equipment management operations, thus reducing the cost of building management. It is also convenient for tenants, who can use the service to turn air conditioning and lighting on or off, or change the settings, via PC, tablet, or smartphone. Temperature settings can be changed based on the tenant's feeling of warmth and coldness, which helps improve working environments. It also permits visualization of energy use, which is helpful when pursuing energy saving activities and raising awareness.

Building owners
Improved tenant satisfaction and lower management costs

Building managers
Creates daily work reports
Efficient equipment management and medium-to-long-term planning

Building occupants
Air conditioning extension/operation application
Visualization of air conditioning and lighting status raises awareness about energy efficiency

CSR personnel
Encourages energy saving activities and compliance with laws and regulations

Azbil Cloud Center

Visitors
Publicizes environmental initiatives

Advanced Automation (AA) Business

Business Fields: [Process Automation] Petrochemicals and chemicals, oil refining, electric power and gas, iron and steel, waste management, water supply and sewerage, paper and pulp, ships, etc.
[Factory Automation] Food, pharmaceuticals, automobiles, electrical and electronics, semiconductors, manufacturing equipment (industrial furnaces, machine tools and others), etc.

Leader in Japan's industrialization

➔ **100-plus-year history in measurement and control advances and rich experience and know-how in wide-ranging markets**

Long-term partner of customers and society

➔ **Total life-cycle support, from development and production to maintenance, done in-house**

Applying technological innovation to measurement and control

➔ **Solutions-driven business with advanced measurement and control technology**

Helping to solve problems at manufacturing sites to realize safe, comfortable, and ideal work environments

Our Advanced Automation (AA) business fields are broadly divided into the process automation (PA) field, related to the materials industry, and the factory automation (FA) field, related to the processing and assembly industry. In these fields, we have three business sub-segments based on market and product characteristics: CP, IAP, and SS. Each sub-segment has a high level of expertise and uses an integrated framework to achieve customer satisfaction. To solve problems at various manufacturing sites, including plants and factories, we offer products, solutions, instrumentation and engineering, and maintenance services that support increasing sophistication and optimal operation of equipment and facilities throughout their life cycles.

Seizing technological innovations in such areas as IoT, big data, and AI as opportunities, we develop advanced measurement and control technologies to support the creation of new value in the manufacturing industry, together with our customers who aim for not only stable and safe operations but also improvements in productivity and innovations in production processes.

Three Business Sub-segments

Control Product (CP) Business

Supplying factory automation products such as controllers and sensors

Industrial Automation Product (IAP) Business

Supplying process automation products such as differential pressure & pressure transmitters, and control valves

Solution and Service (SS) Business

Offering control systems, engineering service, maintenance service, energy-saving solution service, etc.

Main Products/Services

- Sensors and switches
- Controllers
- Flat-panel displays and recorders
- Combustion safety and control systems

- Control valves and actuators
- Measuring instruments and transmitters (Flow rate, temperature, pressure, liquid surface, etc.)

- Industrial automation control and monitoring systems, applications, and software
- Maintenance service

Business Fields

Factory Automation (the processing and assembly industry)

Sectors that handle or utilize automation of production processes, such as electrical/electronic devices, semiconductors, food, and pharmaceuticals
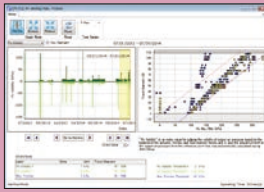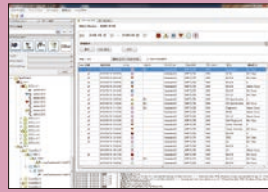
Process Automation (the materials industry)

Sectors that supply production materials to the petrochemical, chemical, steel, and other industries

Diagnosis

Visualization and diagnosis of the status of production and equipment operation using high-performance sensors

Control valve maintenance support system
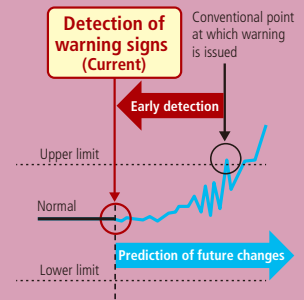
Device management system

Prediction

Using big data and AI to detect problems beforehand, predict the future status, and optimize operational plans

Online anomaly monitoring system

Early warning system for time series data

Detection of warning signs (Current)

Conventional point at which warning is issued

← Early detection

Upper limit

Normal

Lower limit

Prediction of future changes

Using big data and AI at manufacturing sites to support safer and more stable operations

BIG DATA

Adjusting

Control Valves

Optimal adjustment of the flow rates of gases and liquids at customer sites

Control valve and smart valve positioner

Monitoring

Monitoring and Control Systems

Monitoring of manufacturing processes

Monitoring and control system

Detecting

Sensors and Switches

Precise detection and high reliability to support a broad range of needs at customer sites

Laser sensor

Photoelectric switch

Advanced ultraviolet flame detector

Limit switch

Earthquake sensor

Micro flow rate liquid flow meter

Controlling

Controllers

Optimal control of processes, equipment, and facilities

Multi-loop controllers with multifunction display

Network instrumentation module

Process controller

Measuring

Process Sensors

Measurement of flow rates, pressure, liquid level, and calorific value

Electromagnetic flow meter

Differential pressure and pressure transmitter

Natural gas calorimeter

Vortex flowmeter

Development and production of measurement and control instruments, monitoring and control systems, and applications that solve problems at production sites

AA

We will continue working relentlessly to strengthen profitability, centered on our three business sub-segments, while responding quickly to changes in the business environment. At the same time, we will leverage products and services unique to azbil to develop and expand our business domains.

Sales	Segment profit
¥93.2 billion	**¥10.5** billion
(down 6.3% year on year)	(down 14.1% year on year)
	(Segment profit ratio 11.3%)

- Sales declined, mainly due to a sluggish manufacturing equipment market.
- Ongoing measures to strengthen segment profit, including a reassessment of low-profit businesses, were successful.

Yoshimitsu Hojo
Director
Managing Executive Officer
President of Advanced Automation Company
Azbil Corporation

Advanced Automation

Operating Environment

In fiscal year 2019, ended March 2020, despite signs of recovery in the semiconductor manufacturing equipment market, overall investments in the manufacturing equipment market were sluggish both in Japan and overseas. Meanwhile, the impact of the COVID-19 pandemic gradually materialized in the fourth quarter, resulting in growing uncertainty about the markets in general. Nevertheless, medium- and long-term demand is expected to remain solid for automation solutions aimed at addressing labor shortages and environmental issues and achieving further increases in productivity.

Review for fiscal year 2019

Responding to these changing business conditions, we sought to strengthen our global competitiveness by leveraging our three business sub-segments*—Control

Product (CP), Industrial Automation Product (IAP), and Solution and Service (SS)—to implement rigorous operations through our integrated framework, covering everything from marketing to sales and services. In addition, we pursued growth strategies for the three business sub-segments and took steps to strengthen their profitability.

As a result, with respect to orders received and sales, our IAP and SS businesses, which mainly target the process automation market, performed relatively well. However, there was a sharp decline in the CP business due to sluggish manufacturing equipment markets in Japan and overseas. As a result, orders received decreased 6.5% year on year, to ¥91.9 billion, and segment sales were down 6.3%. Impacted by lower sales, segment profit fell 14.1% year on year. Thanks to ongoing measures to strengthen profitability, however, the segment profit margin, which serves as an indicator of profitability, remained above 10%.

Outlook

In the AA business, we will continue deepening and entrenching measures to strengthen profitability that have proved successful to date, in order to maintain solid business earnings. At the same time, we will pursue overseas business expansion and other strategies targeting future growth. While monitoring changing technology trends in varying markets, we will select, create, and concentrate on businesses with future growth potential where we can provide added value. At the same time, we will strengthen competitiveness by concentrating our management resources on a global common business model. We will steadily implement these growth strategies and profitability enhancement measures in our CP, IAP, and SS business sub-segments. Specifically, we will reinforce our sales system to expand customer coverage in Japan and overseas while accelerating product development to facilitate creation of new automation. In strategic regions and markets, including overseas markets with high growth potential, we will strengthen our sales systems, reassess our sales structures, and introduce sales support tools in order to improve the quality and quantity of our activities. In addition, we will aim to further expand our business by creating new automation solutions, such as anomaly monitoring and AI-based equipment diagnosis.

Due to the COVID-19 pandemic, we expect the business environment to deteriorate in the short term in the wake of stagnating economic activity and uncertainty about the future. In response, we will engage in rigorous crisis management and respond swiftly to changes in the business environment. Looking at the AA business from a medium-to-long-term perspective, we foresee ongoing increases in demand for automation as a solution to meet diversified work styles and the needs of the "new normal" era, in addition to addressing existing issues related to labor shortages and the environment. While stepping up measures to optimize production, the AA business will create a new manufacturing environment and propose advanced automation solutions that help people play more creative roles. We will also achieve sustainable growth with solutions based on technological innovations and new ideas that contribute "in series" to achievement of the SDGs.

* Three AA business sub-segments (for management accounting):
Control Product (CP) business: Supplying factory automation products, such as controllers and sensors
Industrial Automation Product (IAP) business: Supplying process automation products, such as differential pressure and pressure transmitters and control valves
Solution and Service (SS) business: Offering control systems, engineering services, maintenance services, energy-saving solution services, etc.

Close Up

Online anomaly monitoring system

Utilizing AI to realize a "new manufacturing environment"

Our online anomaly monitoring system uses artificial intelligence (AI) to learn about normal operations from big data stored in the plant, and undertakes constant online monitoring of environmental variables—such as processes, equipment, product quality, wastewater, and atmosphere—to detect unusually small deviations from the normal at an early predictive stage. This helps prevent unexpected equipment outages and production problems, such as raw material loss and delays in delivery, thus contributing to stable production. It also allows unattended remote monitoring of equipment and condition-based maintenance (CBM), which helps reduce equipment maintenance and operation costs and improve capacity utilization rates. The system can handle all elements of process automation — combining not only sensor data but also additional information obtained from control systems as well as manufacturing execution systems (MES) — from continuous processes to high-mix low-volume production batch process,

regardless of business type/format or factory size. Accordingly, it can meet the needs of numerous manufacturing companies.

Online anomaly monitoring system

Machine learning

Big data
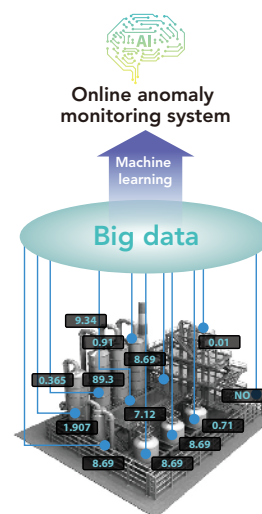
Life Automation (LA) Business

Business Fields: [Gas and Water Meters] City gas (for homes/industries), LP gas, water supply (local government), etc.
[LSE] Pharmaceutical manufacturing, life science research & development
[Residential Central Air-conditioning Systems] Ordinary detached houses

<div style="background:orange">Measuring instrument pioneer and innovator</div>

➲ Gas and water meters: Deploying IoT technologies for smarter gas and water meters based on stable meter replacement demand

<div style="background:orange">Life sciences and automation</div>

➲ Life Science Engineering (LSE): Delivering integrated products and services based on proprietary technologies to the pharmaceutical market

<div style="background:orange">Advanced air conditioning for detached houses</div>

➲ Residential central air-conditioning systems: Providing comfortable, healthy living spaces

Supporting safe, secure, comfortable, and healthy living through measurement and control technologies

We are advancing our Life Automation (LA) business by deploying measurement, control, and metering technologies, cultivated over many years in the building and industrial markets, to expand our presence in new business domains that support people's lives. Specifically, the LA business focuses on the following three fields.

▶ Gas and Water Meters (Lifelines)	▶ Life Science Engineering (LSE)	▶ Residential Central Air-conditioning Systems
Provision of city gas/LP gas meters and water meters for the household market, as well as products for industries, including regulators, and also safety equipment in the form of alarms and automatic shut-off valves.	Provision of integrated solutions for pharmaceutical manufacturing, from the development, engineering, installation, and sale of lyophilizers, sterilizers, and clean environment equipment to after-sales services.	Provision of residential central air-conditioning systems for detached houses, whereby cooling, heating, ventilation, air purification, and dehumidification are handled by a single system, ensuring comfort for the entire house.
In December 2005, Kimmon Manufacturing Co., Ltd. (now Azbil Kimmon Co., Ltd.), which manufactures and sells city gas meters, LP gas meters, and water meters, became an azbil Group member. That company is a pioneer in metering instruments, having developed the first Japan-produced gas meter in 1904. It has a stable business foundation that benefits from replacement demand for gas and water meters as required by law, and is also using IoT technologies to develop smart meters.	Spain-based Telstar S.A. (now Azbil Telstar, S.L.U.), which supplies process equipment and environmental systems for pharmaceutical companies and laboratories, became a member of the azbil Group in January 2013. That company is advancing its operations globally, including in Europe, Latin America, and South Asia. For many years, it has built a track record and experience in engineering and the development of equipment and services related to life sciences.	In this field, we apply air-conditioning technologies for large-scale buildings to central air conditioning of detached houses. We provide comfortable, healthy living spaces via our central air-conditioning systems, which feature electronic air cleaners with PM2.5 pollen-removal performance, as well as variable air volume (VAV) control enabling temperature settings for each room.

Life Science Engineering

[Azbil Telstar, S.L.U.]

Pharmaceutical Manufacturing Equipment

Barrier systems   Lyophilizer

Total Solutions for Life Sciences

Provision of comprehensive solutions covering the design, engineering, and manufacturing processes that integrate automation technologies for companies engaged in life sciences. These solutions are achieved as turnkey projects* in which expert teams are involved in the entire manufacturing process. We design and manufacture process equipment and facilities which apply our original technologies, such as decontamination, pure water and pure steam, and freeze drying, in order to contribute to the construction of factories that take into account efficiency, the environment, and safety.

* Contracts under which each single contractor assumes responsibility for delivery dates, assurance, and performance guarantee collectively for all operations, ranging from design to procurement of equipment, materials, and services, construction, and test run.

Residential Central Air-conditioning Systems

[Azbil Corporation]

Air Quality —Ventilation and Central Air-conditioning Systems

Ventilation is important to protect people in enclosed spaces. Unlike ordinary room air conditioners, azbil's residential air conditioning system uses a heat exchange ventilation system to change the air in the entire house once every two hours. It also features an electronic air cleaner that removes pollen and PM2.5 particles to enhance air quality while saving energy.
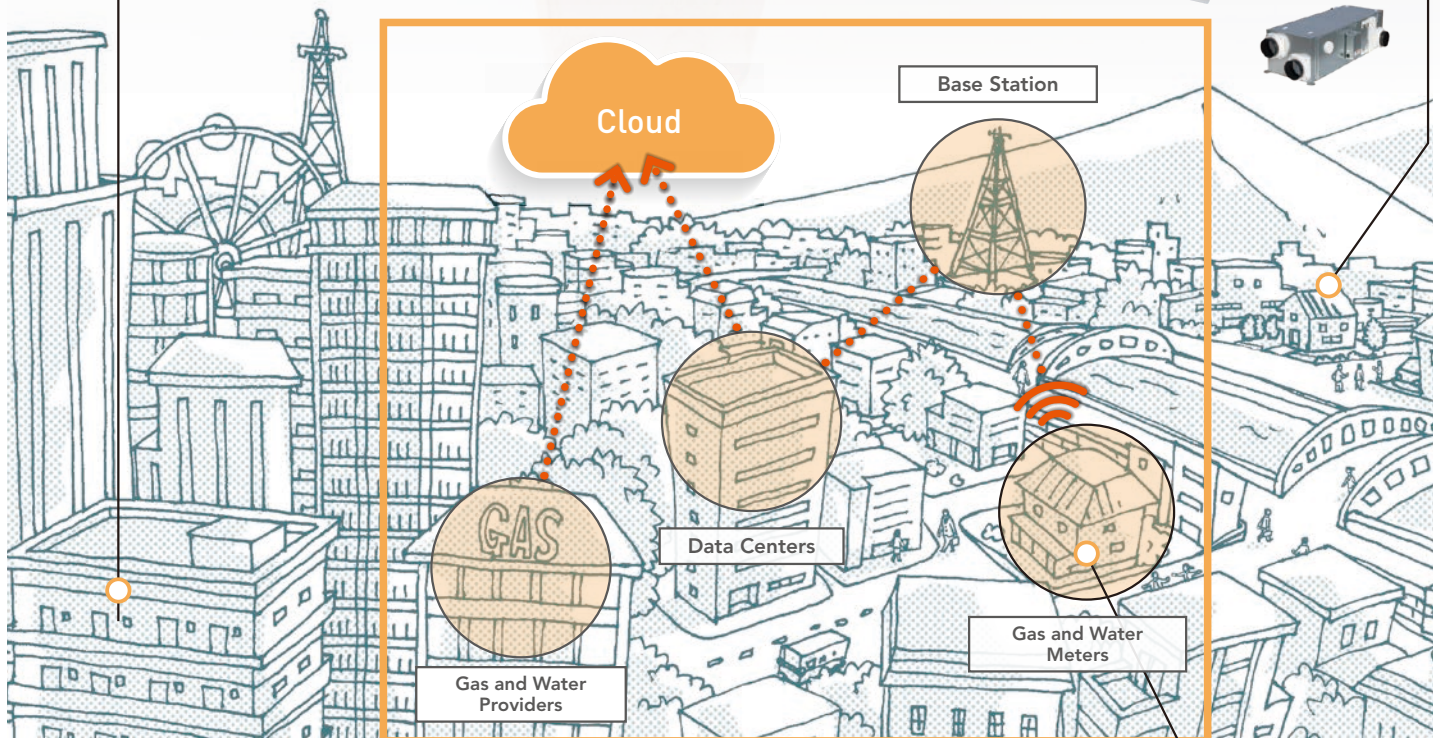
Outdoor unit

Indoor unit and electronic air cleaner

Outlet

Energy Recovery Ventilator

Cloud

Base Station

Data Centers

Gas and Water Providers

Gas and Water Meters

Gas and Water Meters

[Azbil Kimmon Co., Ltd.]

Water Meter

LPWA capable electronic water meter

Battery-operated electromagnetic water meter
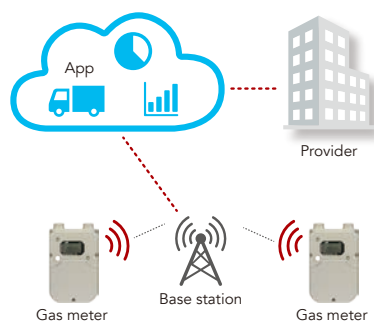
Gas Meter

[City gas]

Intelligent city gas meters

Ultrasonic LP gas meter

[LP gas]

LPWA capable intelligent LP gas meter

Ultrasonic LP gas meter

High pressure regulator

LP gas cloud service using IoT

Various information obtained from consumers' meters is transmitted wirelessly to the cloud, which is connected to gas providers, dramatically increasing the efficiency of day-to-day tasks, such as meter reading, security provision, and delivery planning. In this way, information from meters is used to provide higher added value than ever before to both gas providers and users.

App

Provider

Gas meter   Base station   Gas meter

LA

In addition to fostering the safety and security of energy infrastructure, medical care, and living spaces, we aim to grow our business with products and services incorporating IoT and other technologies.
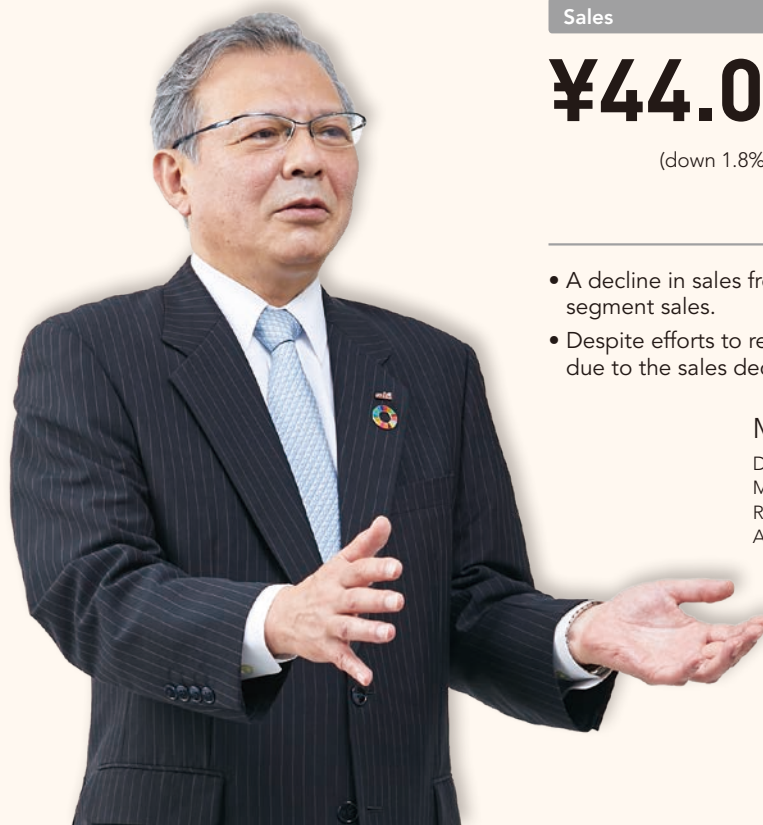
Sales	Segment profit
¥44.0 billion	**¥1.9** billion
(down 1.8% year on year)	(down 9.4% year on year) (Segment profit ratio 4.2%)

- A decline in sales from our LSE business led to a slight decrease in segment sales.
- Despite efforts to reform our business structure, segment profit declined due to the sales decrease.

Masato Iwasaki
Director
Managing Executive Officer
Responsible for the Life Automation Business
Azbil Corporation

Life Automation

Operating Environment

The Life Automation (LA) business operates in three fields: lifeline field for gas and water meters; Life Science Engineering (LSE) field for pharmaceutical manufacturers and research laboratories; and lifestyle-related field for residential central air-conditioning systems. Each field has a different business environment.

In fiscal year 2019 (ended March 2020), our lifeline business in gas and water meters, which accounts for the majority of segment revenue, continued benefiting from robust cyclical replacement demand as required by law, although the business environment was impacted somewhat by liberalization of the gas market. The LSE and lifestyle-related fields saw fluctuations in demand. In the LSE field, however, demand for manufacturing equipment for pharmaceuticals, such as vaccines and generics, remained firm, especially in emerging countries. In the lifestyle-related field, we benefited from steady ongoing demand for whole-building air-conditioning systems for detached houses from the perspective of comfort and health.

Review for fiscal year 2019

In this business environment, orders received in this segment rose 2.1% year on year, to ¥44.8 billion, owing to an increase in orders received in the LSE field. Due to a decline in orders received in the LSE field in the previous fiscal year, however, segment sales in fiscal year 2019 slipped 1.8%, to ¥44.0 billion. Segment profit fell 9.4%, to ¥1.9 billion, reflecting the decrease in sales.

Outlook

In the LA business, we will continue working to improve the profitability of each field. At the same time, we will target business growth in various ways. For example, we will monitor changes in demand in the energy markets, resulting from liberalization of gas sales, to seize new business opportunities while developing and launching new products and high-value-added services that incorporate IoT and other technologies.

In the lifeline field for gas and water meters, there is a growing need for high-value-added services to address labor shortages and enhance efficiency. Utilizing azbil Group synergies derived from our dedicated meter sales system, we will work to increase the added value of our products and expand our lineup, including through collaborations with other companies, with the aim of transitioning from dealing mainly in meter sales into the Smart Metering as a Service (SMaaS) business. In the LSE field, we will continue engaging in rigorous business management while reforming our services and other elements of our business structure to build a foundation

that can steadily generate profits. At the same time, we will target business growth in the market for pharmaceutical manufacturing equipment, in which vaccines, etc. are earmarked for future expansion, by incorporating the azbil Group's technological capabilities to add value to our equipment lineup. In the lifestyle-related field, we will continue working to broaden our sales channels while launching new products and strengthening our life-cycle-related business in order to achieve business growth.

Although the spread of COVID-19 had a temporary impact on our sales activities, we were able to continue our business, which plays an indispensible role in the maintenance and health of society. Through our LA business, we contribute to the safety and security of energy infrastructure, medical care, and living spaces—all of which are essential to people's lives. As a socially responsible business that contributes "in series" to the achievement of the SDGs, we will strive to achieve steady earnings and sustainable growth.

Close Up

Social infrastructure as a service

Making gas and water meters smarter with cloud service using IoT

In the LA business, we are using IoT technologies to enhance our water and gas meters. In the LP gas market, we are expanding sales of LA gas cloud service, a service that provides data on meter reading, security, and various alarm statuses via a cloud system. This service uses the LTE-M* communication standard for IoT. We have also started field-testing a smart system for reading meter and alarm system data that can be used for both gas and water meters. In addition, we are accelerating business development in new automation areas with a view to the approaching SMaaS era.

For example, we are examining services that combine data related to electricity, gas, and water usage to create new levels of value.

* LTE-M: A communication standard for IoT that uses a licensed frequency band. It is a type of LPWA (low power wide area) wireless communication technology that saves power across wide areas.
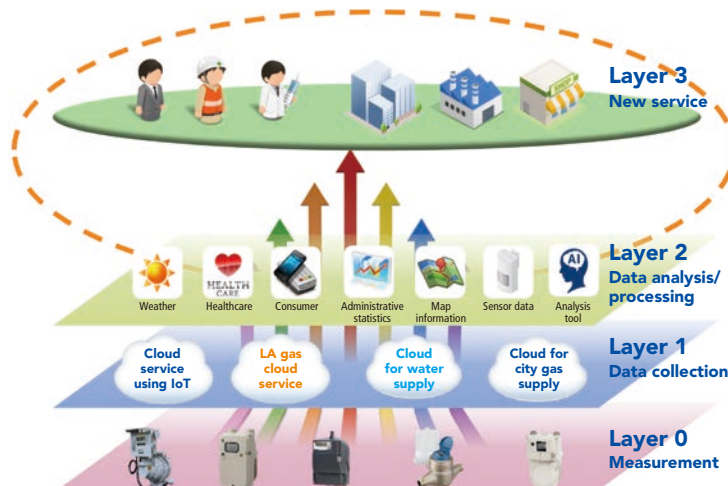
A Robust Global Value Chain

The azbil Group is focusing its efforts on expanding worldwide to achieve greater value creation and growth. Based in our Group philosophy of human-centered automation, we are proactively working towards overseas deployment of the technologies, products, and services honed in Japan, and are working with our customers to create value on-site. Here we introduce you to the hub of those efforts, the azbil Group's integrated framework (i.e., our value chain) comprising of product development, manufacturing, sales, engineering, installation, and services.

Technology Research & Product Development

Manufacturing & Procurement

Services

Human-centered Automation

Engineering & Installation

Consulting & Sales
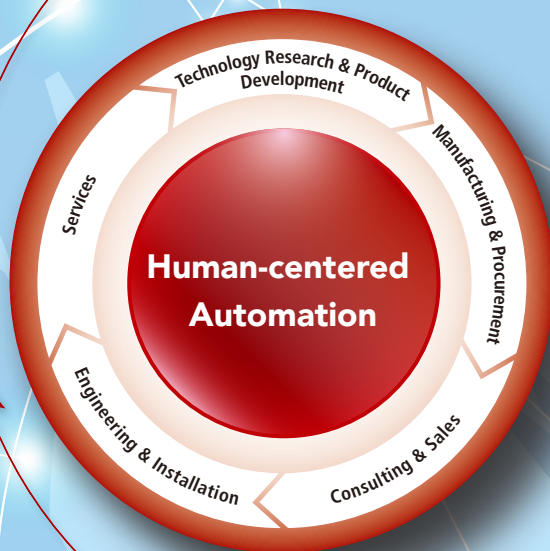
We plan and develop technology and products in our five strategic technology areas to further advance human-centered automation, while simultaneously strengthening our global R&D framework and design and development base and support business expansion.

Technological Research & Product Development
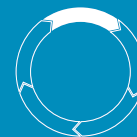
Technological Research & Product Development Policies and Framework

In order to quickly provide our customers with next-generation products built upon the Group philosophy, we operate under a system that emphasizes collaboration between the marketing and R&D departments. We conduct our own research and development based in the five strategic technology areas we have established to enable us to provide wide-ranging value over the medium and long terms and we are stepping up product development in areas of business growth.

Our technology and product development system has three main hubs located in Japan, the US, and Europe. In Japan, research facilities and personnel engaged in research, development, and engineering are consolidated at the Fujisawa Technology Center, where we are working on cutting-edge technology and products that transcend the boundaries of our businesses.

In the US, we have established an R&D base in Silicon Valley, where we are working to bolster our basic technological capabilities and product development, harnessing advanced technology through collaboration with American research institutions and universities. In Europe, we are primarily conducting fundamental technological research and product development of equipment meant for pharmaceutical companies in the life science engineering industry.

The Five Strategic Technology Areas

We must always be ready to provide widely applicable value to respond to the varied and changing business environment faced by our diverse customer base in the office building and housing markets, in industry, and in societal infrastructure. In order to achieve this, we need a mid- to long-term understanding of trends in society, problems faced by customers, and advances in technology, so we have defined the following five strategic areas for technological and product development.

1. Machine systems with humanlike abilities
Intelligent system technology that gives machines humanlike senses, cognitive abilities, and skills, enabling them to work well with people.

2. Flexible measurement and control
Technology that allows for measurement and control where it was previously difficult because of installation location, delay, or environmental conditions.

3. Advanced technology that clarifies complex systems
Information technology that takes complex processes beyond the stage of "visualization" to that of "clarification" of status and problems, to enable advanced system control and system enhancement.

4. Systems enabling us to live in harmony with nature
Control technologies that learn from environmental changes in order to supply just the right amount of energy, bringing human activity (energy consumption) and environmental preservation into harmony.

5. Individualized environmental comfort systems
Technology that maintains the optimal temperature distribution within a space, taking into account the location of human beings and other sources of heat to swiftly provide a safe, high-quality indoor environment.

Initiatives for Product Expansion

Product development in the five strategic technology areas involves working towards installation and use (through applications and cloud computing) of IoT, AI, big data, 5G and other cutting-edge technologies. This will accelerate automation, autonomy, and saving of labor and enhance the integration of machine and human labor, assisting buildings and factories to meet the various challenges of this era of digital transformation. We are developing next-generation air conditioning systems that use IoT and AI, and equipment maintenance systems that use big data and AI in the cloud to diagnose equipment and predict abnormalities, while also fortifying the cybersecurity of our products.

More specifically, in terms of products, we are developing a variety of devices and field instruments aimed at expanding the applicable scope of our solutions using next-generation MEMS technology and sensor packaging technology. We are also developing field instruments and intelligent actuators that harness AI and IoT technologies. In addition, we are working on developing smart robots capable of precise repetitive work and work requiring highly delicate control of applied forces, jobs that had to previously be left to human hands.
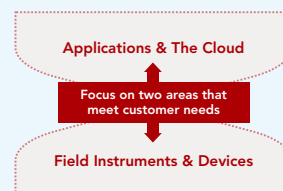
Production Technology

We aim to bolster global production through remote management of product data on quality and equipment maintenance by developing a new type of production line that utilizes machine systems with humanlike abilities, and by introducing IoT to our own production lines. In addition, we are working to improve domestic productivity through the introduction of AI-based automation and other means. We are also looking into production technologies that will make use of the next-generation MEMS sensors that will be developed in the future.

Technological Research and Development Examples

1. Machine systems with humanlike abilities
2. Flexible measurement and control
3. Advanced technology that clarifies complex systems
4. Systems enabling us to live in harmony with nature
5. Individualized environmental comfort systems

✕

Applications & The Cloud

Focus on two areas that meet customer needs

Field Instruments & Devices

1. Machine systems with humanlike abilities

▶ Next-generation Smart Robots

Value Provided Equipped with force sensors and force control functionality, robots can have a human-like kinesthetic sense, delicacy, dexterity, flexibility and more. Work that previously had to be done by people (e.g., press copying, precise fitting insertion, carrying of flexible and fragile objects) can be handled by robots, resulting in improved automation, productivity, and quality.

Development Details We have developed high-accuracy, high-rigidity force sensors using microelectromechanical systems (MEMS) technology. Mounting this technology on a robotic arm allows for gentle movements through fast, accurate force control technologies using the signals sent by the sensors. Such a robot can detect the forces applied in pressing, surface copying, shaft insertion and other actions

2. Flexible measurement and control

▶ Model F7M Micro Flow Rate Liquid Flow Meter

Value Provided Previously it was difficult to measure flows as low as a few milliliters per minute, but our technology allows for accurate measurement of micro flows. The in-line and real-time measurement of micro flows can improve process quality, shorten production time, and allow for remote management in fields such as sterilization, general industry, semiconductor manufacturing, pharmaceuticals, and chemical analysis.

Development Details We were able to achieve a high precision flow measurement accuracy of ±5% of the reading by combining a thermal MEMS sensor that has a proven track record in gas flowmeters with a flow path made of highly corrosion-resistant fused quartz glass and fluororesin. The

3. Advanced technology that clarifies complex systems

▶ Online AI Anomaly Monitoring System for batch processes (enhanced version designed for batch processes)

Value Provided AI is used to detect signs of abnormaly in equipment, devices, processes, and quality in batch process operations, preventing unplanned outages or other impact on production due to equipment or process problems. This product also can help uncover factors contributing to quality problems.

Development Details We developed a hybrid AI that operates using two different Azbil-developed algorithms using different principles, allowing for accurate and comprehensive detection capabilities. Developed with factories in mind, it provides a one-stop solution for executing a series of different operations, including definition of detection models, machine learning, and model evaluation.

4. Systems enabling us to live in harmony with nature

▶ BA system for small buildings

Value Provided This facility-management/monitoring system for small and medium-sized buildings on the order of 5,000 m^2 of floor space can be operated not only with a specialized terminal, but also with a tablet computer in a mobile environment. It also serves as a base for energy management applications in the cloud computer and IoT era.

Development Details We developed a new model of BA management system for small buildings designed to enhance energy management functionality. It is equipped with various functions for the creation of daily/monthly/annual reports and graphs and allows for equipment monitoring and energy management through the specialized terminal or tablet computer. Moreover, through the network, it can
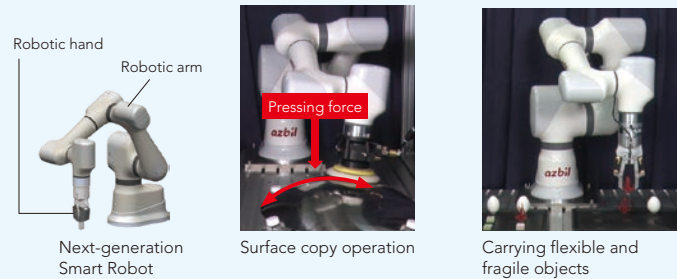
5. Individualized environmental comfort systems

▶ Infrared Array Sensor System

Value Provided Floor, wall, and ceiling temperatures can be measured without contact and displayed as a thermal image. In addition, the presence of people can be detected as heat sources. Using this information, new applications can be developed for air conditioning and lighting control.

Development Details We have developed a lineup of seven different infrared array sensors that can measure surface temperatures in different types of buildings. Up to 200 infrared array sensors can be linked in a single system that uses surface temperatures in a feedforward pathway to immediately determine what air volume and temperature to provide within a space. The presence of humans in real

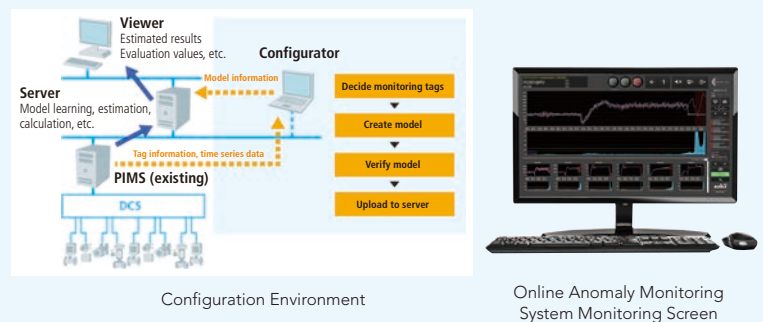in the same way as a human and can adjust the force being applied to the appropriate level. Using the technology in a robotic hand makes it possible to control grip force, allowing for the appropriate force to be applied in gripping and carrying objects, even when the objects being handled are of different hardness and size.
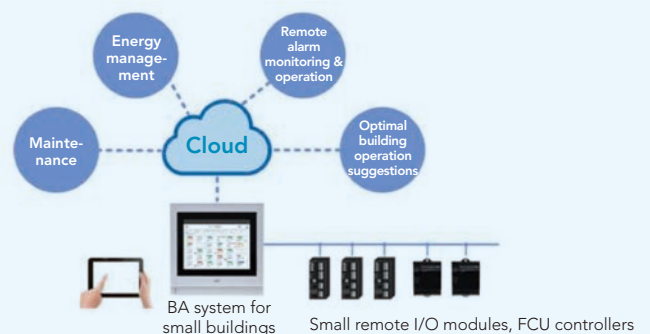

Robotic hand
Robotic arm
Pressing force

Next-generation Smart Robot

Surface copy operation

Carrying flexible and fragile objects

flow channel is straight for low pressure loss and easy cleaning, and there are no moving parts inside.

Extraction/Dispensing — Ex.) Test reagents, diluted solutions, cleaning solutions

MixingDilution — Ex.) Cleaning solutions, chemical agents

Model F7M

Example Application
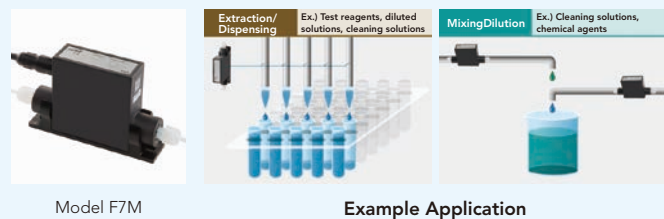
As a result, functions can be built, user-focused systems can be installed, and operations can be maintained even by users with no experience using AI. Universal design elements honed in our control systems were adopted in the user interface such that human users can intuitively interpret the AI-produced results.

Viewer
Estimated results
Evaluation values, etc.

Configurator

Server
Model learning, estimation, calculation, etc.

Model information

Decide monitoring tags
Create model
Verify model
Upload to server

Tag information, time series data

PIMS (existing)

DCS

Configuration Environment

Online Anomaly Monitoring System Monitoring Screen

be used to create visualizations of essentially all data in the system, making it possible to support services aimed at reducing the burden on the global environment and comprehensive building management through cloud computing.

Energy management

Remote alarm monitoring & operation

Maintenance

Cloud

Optimal building operation suggestions

BA system for small buildings

Small remote I/O modules, FCU controllers

time based on surface temperature measurements on a floor space of up to 2,000 m^2. The outputs from each sensor can be combined into a single thermal image of the floor space, over which the furniture layout diagram and results of human detection can be superimposed.

Infrared array sensor

Thermal image of floor space with the results of human detection superimposed
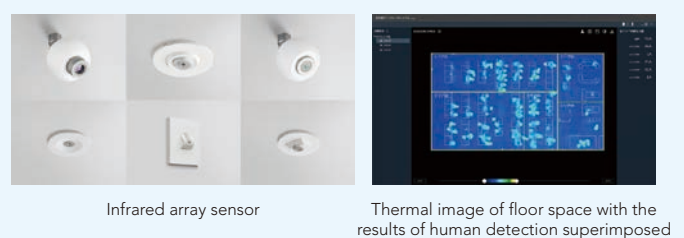
Using Standards to Fortify the azbil Group Structure

We are strengthening the Group's corporate structure and increasing business competitiveness by improving productivity and improving the quality and reliability of our products and services through the three standardization efforts described below.

1. Standardizing Development and Design Operations and Integrating Digital Transformation (DX)

We have introduced a product life-cycle managment (PLM) system with the goal of standardizing development and design processes at the azbil Group. Using that system along with process automation technologies such as robotic process automation (RPA), we are promoting the standardization of our development and design work and DX integration, thereby reducing manual work complexity and improving productivity.

2. Utilizing Standards

We actively support the use of international standards (e.g., ISO and IEC) and domestic standards (JIS) in business operations and strive to accurately grasp both the risks and the opportunities of domestic and overseas standardization trends and respond appropriately. We continue to honor the Group's corporate "DNA" through continued use of the internal standards born from our own accumulated wisdom and know-how.

3. Measurement Standards Management

The azbil Group's calibration capabilities are some of the best in Japan, and we harness them to improve product and service quality and reliability by maintaining and managing measurement instrumentation at production facilities and customer sites to a high standard. We are also increasing our training and guidance efforts for the correct use of measurement instruments within the azbil Group. Furthermore, we continue to harness our advanced technological capabilities, which we have cultivated in realizing a broad range of calibration types and ranges, as we research and develop of new methods of measurement.


A product using a new measurement method:
the model F7M microflow rate liquid flow meter

Intellectual Property Strategy

We respect the intellectual property of third parties and consider our own intellectual property an important operational resource, which is why we work to acquire and protect patents, design rights, and other intellectual property rights. Our goal is to maintain and expand existing markets as we create new businesses. Based in the collaborative framework created by our business and R&D departments, we work to support decision-making within those departments by actively mining intellectual property data to gain an understanding of technological trends in other companies and around the world. In the business areas we are looking to strengthen and in important R&D areas, we are striving for market dominance with our eyes firmly on global expansion. Accordingly, we take a proactive stance in acquiring intellectual property rights for fundamental and peripheral technologies. At the same time, we are working to improve our overall investment efficiency by abandoning patent rights that contribute little to our competitiveness or business potential.

Number of patents owned
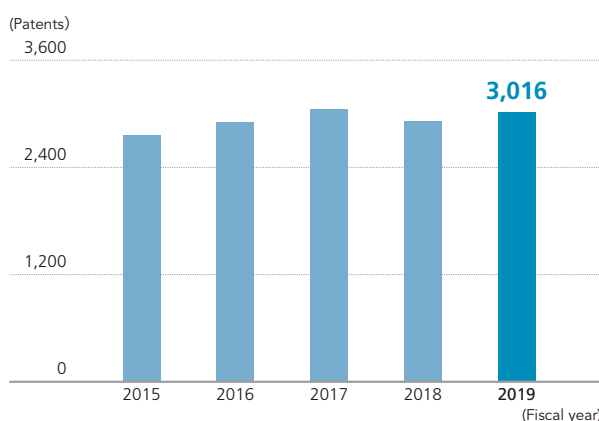
Data on patents and R&D

Fiscal year	2015	2016	2017	2018	**2019**
Patents					
Number of applications	506	506	562	537	**423**
Number owned	2,762	2,902	3,049	2,911	**3,016**
R&D expenses (billions of yen)	11.0	10.4	11.2	11.8	**11.7**
R&D expenses/ net sales (%)	4.3	4.1	4.3	4.5	**4.5**

Brand Management

With the aim of fostering a unified corporate image, we have laid out Group-wide rules for the use of company names and logos under the azbil brand and have implemented them worldwide. One goal is to increase the azbil Group's presence in the global market and promote domestic and overseas business expansion in a more effective way, so we are currently looking for the ideal means of design for everything from the communication tools we use to remain in contact with stakeholders to our products.

Our businesses are all based on our philosophy, which is aimed at achieving human-centered automation, and our goal is to continue to evolve to meet the needs of the future by harnessing the high technological capabilities and problem-resolution skills we have demonstrated in all fields of operation. In order to communicate that goal to even more people, we have set guidelines for the design of catalogues, websites, exhibition booths, and other avenues of communication, and the effect of those

guidelines can be seen in our corporate publications and exhibition booths, both in Japan and overseas.

Aiming for "a world of automation created by human ingenuity and technology" as a vision for the future, the azbil Group is establishing design guidelines common to the entire company. These guidelines are intended to inculcate human-centered design and encourage thinking about design during development.

The azbil Group's businesses are diverse, including buildings, factories, industrial plants, and homes, and everything from products and systems, to sensors and valves. We work hard not only to unify the appearance of our offerings, but also to design our functionally complex products to be easy to understand. We strive to understand where and how our products will be used in order to design them optimally for users. We see it as our mission to create products and services based on our "human-centered" philosophy. The various products created through these efforts have been honored with prominent design awards in Japan and Germany.

Examples of our design guidelines in use
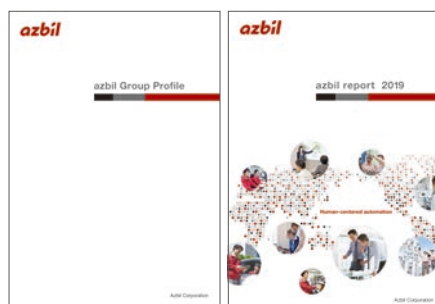
Publications: azbil Group Profile and azbil report 2019

Exhibition booth at Industrial Transformation Asia-Pacific (ITAP) in Singapore

Exhibition booth at Manufacturing Expo in Thailand

Design Awards Received

Ceiling temperature sensor

Infrared array sensor

Controller for air conditioning equipment & I/O module product line

The iF Design Award
A prestigious international award given annually to superbly designed products, buildings, and concepts by the iF International Forum Design GmbH in Germany.
The Red Dot Design Award
It is another international award for design presented by Germany's Design Zentrum Nordrhein Westfalen.

Manufacturing & Procurement

Accelerating the establishment of the ideal global production and distribution system Group-wide, and moving ever closer to meeting the challenge of next-generation production aimed at innovative manufacturing
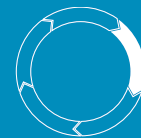
Improving Production Systems Overseas

Our goal is to create the ideal production system to support expansion of our business globally. We are working to improve production capacity and procurement overseas and have continued our efforts to maintain sales and distribution channels, all while fortifying our three production centers in Japan, China, and Thailand. At our production base in Thailand, we continue to expand production scale with a focus on component products and have successfully expanded production by increasing the types of products we produce utilizing a newly built second factory, which began operations in 2018. In our production base in the Chinese city of Dalian, we are expanding production capacity for valves and differential pressure / pressure transmitters and have begun work on a new factory to be completed in late 2022 that will allow us to increase production capacity even more. Simultaneously, we are also working on process automation, to build a better foundation for improving production scale and productivity.

We have also moved forward with establishing sales and distribution channels that will allow our overseas production bases to sell and ship directly to other countries. Along with the increased overseas production capacity, we are also expanding overseas material procurement capabilities, thereby promoting better quality assurance and environmental consciousness. We are also redoubling our efforts to lower material costs, both in Japan and abroad.

Building the Group's New Main Factory

As a part of our efforts to optimize our global production framework, we completed the integration of our Isehara Factory into the Shonan Factory to create a single production base in Japan in May 2019. The new Shonan Factory and the technology R&D facility, the Fujisawa Technology Center, work in close collaboration with each other, functioning together as a "mother factory" for the Group. Our new challenge for next-generation production is our "4M Revolution" concept (man, machine, material, and method), which we will implement through the three functionality improvements listed below.

▶ **Produce** We will take up the challenge of developing cutting-edge technology with advanced MEMS sensor packaging, automatic precision processing, and production processes harnessing AI and ICT, facilitating high value-added products and advanced production processes unrivalled by any other company.

▶ **Demonstrate** The azbil Group's specialty is the development of highly automated lines that support high-mix low-volume production and other types of customization in which humans and machinery work in harmony. That is where we demonstrate our competitive production capabilities, which are both flexible and powerful. We will apply and verify new advanced machinery and procedures in actual mass production processes, such as the automation of processes used for multiple types of products and mechanization of products that previously depended on human workers, and thereby construct the foundations for their application worldwide.
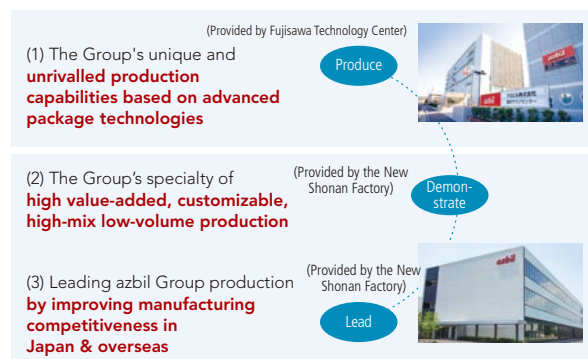
▶ **Lead** Our Shonan Factory leads the production, distribution, and production efforts for the entire azbil Group, and is also promoting standardization in the Group's factories around the world with the aim of improving global production. We are also implementing programs around the world to train personnel in the use of our production and management technologies.

We intend to continue building advanced production lines, improving production processes, and raising operational efficiency, in order to promote innovation leading to the type of high value-added manufacturing that only the azbil Group can offer. With our "mother factory" in the lead, we will continue to develop new measures to bolster the manufacturing capacity of each production company in the azbil Group.

azbil Group Mother Factory

Bringing to life the "mother factory" that will lead the Group's 4M Revolution

(4M stands for "man, machine, material, and method.")

(1) The Group's unique and **unrivalled production capabilities based on advanced package technologies**
(Provided by Fujisawa Technology Center)
Produce

(2) The Group's specialty of **high value-added, customizable, high-mix low-volume production**
(Provided by the New Shonan Factory)
Demonstrate

(3) Leading azbil Group production **by improving manufacturing competitiveness in Japan & overseas**
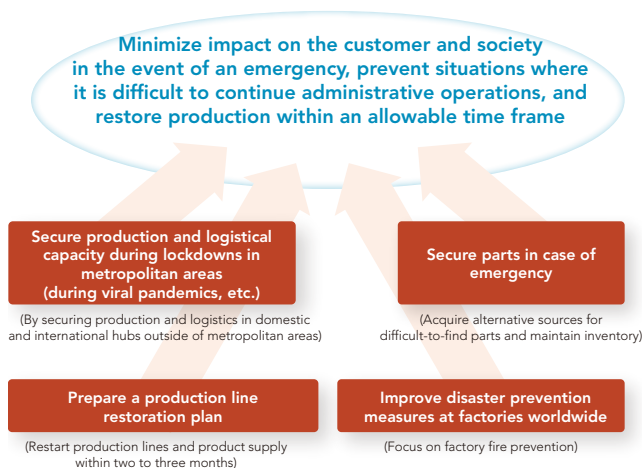(Provided by the New Shonan Factory)
Lead

Creating a BCP for Manufacturing and Procurement

Production and logistical risks abound and can include major damage from natural disasters or other unexpected situations in other countries, and the spread of COVID-19. We equip our customers with production and procurement BCP frameworks to address those risks and minimize the impact of emergencies. We apply the following approaches to restore production within an allowable period of time when operations are interrupted by an emergency.

- A restart plan in the case of difficult production line recovery due to factory fires, natural disasters, etc. (production line BCP)
- Alternative parts acquisition and inventory maintenance plans in cases where parts are difficult to obtain due to fires at manufacturer factories, natural disasters, etc. (product BCP)
- Securing alternate production and logistical capacity in Japan and overseas when strict restrictions are placed on production operations in the Greater Tokyo area due to the spread of viruses, etc. (response to restrictions placed on activities in a metropolitan area)

We also continue to implement preventative maintenance against natural disasters (such as earthquakes and fires), installing seismic countermeasures and employee safety measures, and increasing factory disaster prevention capabilities.

Manufacturing and Procurement BCP Countermeasures

Minimize impact on the customer and society in the event of an emergency, prevent situations where it is difficult to continue administrative operations, and restore production within an allowable time frame

Secure production and logistical capacity during lockdowns in metropolitan areas (during viral pandemics, etc.)
(By securing production and logistics in domestic and international hubs outside of metropolitan areas)

Secure parts in case of emergency
(Acquire alternative sources for difficult-to-find parts and maintain inventory)

Prepare a production line restoration plan
(Restart production lines and product supply within two to three months)

Improve disaster prevention measures at factories worldwide
(Focus on factory fire prevention)

Contributing to a Sustainable Society and Ensuring Continued Corporate Growth

In line with our thinking about the SDGs, we are also strengthening our efforts toward achieving a sustainable society and continuous corporate growth. In production, we are improving energy efficiency through the use of IT, AI, and other technologies; in products, we are employing energy-saving design to reduce the amount of material used, to make greater use of renewable materials, and to reduce the number of parts used. After learning that our targets were SBT-certified,[1] we have further expanded and increased our efforts in the supply chain as well.

The azbil Group will continue to promote the optimization of our global production framework, providing high-quality advanced technologies, products, and services worldwide in a timely manner. By so doing, we will be able to meet the various needs of our customers and contribute to a sustainable society and sustainable business operations.

Innovative Production Processes

By pursuing increasingly sophisticated production technologies, we are able to promote innovation in production processes and build competitive production lines. As a part of that effort, we promote the development and application of technologies in production lines that allow us to create products few other companies can, an effort that can be seen in the connection, bonding, and assembly of fine parts and precision processing exemplified by our MEMS[2] sensor assembly technologies, and in our pursuit of unique, advanced manufacturing processes using new materials and innovative material processing technologies.

In addition, in order to improve manufacturing process efficiency and quality, we are systematically moving towards further automation and systemization of processes based on the azbil Group's own HCA-MS[3] concept. By combining the latest in AI and IoT technologies with the precise assembly, product processing, and image processing technologies of the azbil Group, we are working towards an advanced level of automation by mechanizing processes that were once difficult to automate, such as those that required the skill and experience of workers, and by automating inspection processes that once needed a certain level of experience and judgment.

We are expanding the application of our technological advances from our domestic factories to our factories overseas as we strive to maintain and improve quality worldwide and increase the competitiveness of our businesses.

*1 Science Based Targets (SBT) is an initiative that was launched in May 2019 to set greenhouse gas emission targets based on scientific evidence in order to keep global temperature rise under 2 degrees Celsius compared to pre–industrial revolution levels.
*2 Microelectromechanical systems (MEMS) are devices built using microfabrication technology to integrate mechanical components, sensors, actuators, and electronic circuits on silicon substrates.
*3 Human-centered Automation for Manufacturing Systems (HCA-MS) are systems that realize the Group philosophy's aim of human-centered automation. Such a system mechanizes human capabilities such as kinesthetic sense, eyesight, and intelligence, combining the accuracy of machinery with human flexibility and automating processes that were difficult to automate using previous technology. Functionality is modular, allowing reuse and flexible response to production facility expansion or other changes.

Automated assembly process for a MEMS sensor

Our unified framework spans everything from consulting and sales operations to engineering, installation, and services, allowing us to offer high value-added solutions and services worldwide, all of which harness the wisdom and know-how we have gained through working with our customers.
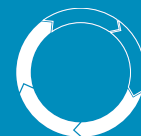
Sales, Engineering, Installation, and Service

Providing Total Solutions Worldwide

In order to maximize life-cycle value in our customers' buildings, factories, and plants, the uniquely integrated framework of the azbil Group allows us to offer total solutions that include everything from consulting and sales proposals to engineering, installation, and services. Our sales, systems, field, and service engineers work around the world to provide optimized solutions tailored to each site in order to meet the different requirements at various stages of the life cycle — planning, operation, maintenance, improvement, and refurbishing.

Sales, Engineering, and Installation

We work in an integrated framework to share the various needs and problems faced by our customers in their buildings, plants, and factories, from analysis to proposal of solutions, to system design and actual onsite installation and coordination.

Business begins by determining each customer's individual needs

▶ Building Automation (BA)

The building air conditioning control systems developed by our BA business face a variety of challenges depending on how the facilities are (e.g., as an office, hotel, or hospital) and on regional characteristics. The azbil Group conducts consultations with our customers to determine which BA system, control equipment, energy-saving solutions and services are right for them, applying the know-how and real data we have gathered over our many years of operation. Our field engineers use their deep knowledge of the products and ability to adapt to provide customers with the level of control they need, meeting the onsite engineering needs and providing process safety, quality, and cost management throughout the construction process. In addition, there is a growing demand in overseas markets for precise temperature control that maintains comfort and for environment-conservation measures. We harness the know-how we have gained working in Japan to propose and provide life-cycle solutions tailored to the regional characteristics of each site.

▶ Advanced Automation (AA)

The needs at production sites operated by the customers of our AA business are also diverse, and they are rapidly changing in line with technological developments such as the IoT, AI, and cloud computing. For example, our sales engineers provide energy-conservation solutions after diagnosing where energy use can be reduced and performing test calculations on the effectiveness of investment. When looking to improve production processes, engineers visit facilities to work with customers to look for and share potential solutions. We meet customer needs not only with our own products, but also with the azbil Group's comprehensive capabilities, including applications that incorporate products from other companies. Our systems engineers use their familiarity with IoT, AI, and other advanced technologies to design and build high-performance, high-quality systems. For customers in equipment manufacturing, we offer high value-added solutions worldwide based on the relationship of trust we have built, supplying not only products, but also proposals for applications and customization at the equipment design and development stages.

▶ Life Automation (LA)

Life science engineering is one component of our LA business. We provide the equipment used to produce vaccines and other pharmaceutical products. In order to ensure the safety of pharmaceutical products, product manufacturing equipment and services have technologically complex and highly distinct requirements, and they must meet extremely strict legal regulation in terms of design and fabrication. In the azbil Group, Azbil Telstar stands at the heart of our efforts in this field, making use of its approximately 60 years of experience and achievements. Sales and field engineers with a wealth of knowledge regarding pharmaceutical fabrication listen to our customers' needs and propose optimal solutions that comply with all regulations for design, fabrication and construction of freeze dryers, sterilizers, and barrier systems.

Maintenance Service

Our service engineers are specialists in the equipment and systems used in buildings, plants, factories, and other facilities. They provide optimized operation, regular inspections, and maintenance services, and they respond quickly in the event of an urgent problem. In addition, by promptly and faithfully sharing customer feedback within the Group, and by reflecting that feedback in our products and services, we aim to provide increased value and efficiency. Also, we are transitioning from conventional labor-intensive services to knowledge-intensive services centered on solutions proposals based on our wealth of data and proven results. We are also working to improve systems and personnel training overseas in order to offer the same services we offer in Japan.

▶ Providing Knowledge-Intensive Services

We are pushing forward with the use of tools for service operations, based in the advanced technologies and rich know-how available only to control and management professionals like those in the azbil Group. In addition to using tools to improve the efficiency of onsite inspections, we conduct appropriate maintenance of automated control equipment through remote data collection, event analysis, and control operation inspections conducted by offsite experts. Additionally, we collect and analyze self-diagnostic information and provide proposals on preventative maintenance for better reliability to ensure that systems are always operating properly and to allow for prompt recovery if problems arise.

▶ Global Expansion of Services

In our BA business, we are bolstering our remote maintenance capabilities to allow for remote monitoring of buildings overseas, in addition to offering solutions for effective maintenance and energy conservation. Our AA business provides solutions-based valve operations, including control valve product supply and maintenance, through our primary bases in China, Taiwan, Thailand, Singapore, and Indonesia, and also in the Middle East and North America. In the future, we plan to offer smart security solutions worldwide alongside our IoT services that harness AI and big data to detect warning signs of anomalies and predict fluctuations.

The azbil Group's Service Business

System Solutions Development

Technological Research and Product Development

Marketing

Onsite co-creation of value with customers

Customers

Measurement and Control Device Development

We faithfully deliver the value we have created through marketing, technological research, and product development and build trust by transforming onsite challenges into increased value.

The azbil Group's service business helps to keep the environment safe at medical facilities

An important part of the azbil Group's operations is the maintenance of air conditioning in hospitals that are working hard every day to protect the lives of those affected by COVID-19. While paying close attention to ensure the safety of our dispatched employees and to eliminate the possibility of infection, we stay in close communication with the hospital and implement the appropriate measures so that the medical staff can concentrate on medical care for those affected by the virus, and general patients can have peace of mind. The employees we send to work in hospital wards are selected based on their wealth of experience and infection-prevention know-how, and they put various measures in place to ensure the safety of all involved.

Development, production, sales, and service centers in Japan and overseas are organically linked to support problem resolution for our customers and society as a whole. Our unique integrated framework provides optimal solutions to problems and supports the creation of new value.
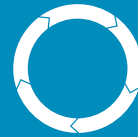
The azbil Group's Global Network
to Support its Value Chain

Europe

China

Japan

Thailand

🔵 Global Development Framework

Technological research and product development system to meet various customer needs, both locally and globally

We have established R&D bases for product and solution development in Japan, the U.S., and Europe. Bases collaborate by utilizing the characteristics of each region, and under our philosophy of achieving human-centered automation, we promote the development of advanced technology and new products that can respond to customer value creation needs and changes in the environment.

Azbil Telstar, S.L.U. (Spain)

Fujisawa Technology Center (Japan)

R&D Bases

Japan
Azbil Corporation Fujisawa Technology Center and four other companies

USA
Azbil North America Research and Development, Inc.
Azbil North America, Inc.
Azbil VorTek, LLC

Europe
Azbil Europe NV (Belgium)
Azbil Telstar, S.L.U. (Spain)

🟢 Global Production Framework

With bases in Japan, China, and Thailand, a framework providing advanced and flexible production and logistical capabilities

We have established a production framework located both in Japan and abroad that is responsive to market environment changes and globally competitive. By strengthening collaboration between azbil Group companies and departments, we are reducing the time from development to production and providing uniformly high-level products at optimal cost to our customers around the world.

Azbil Control Instruments (Dalian) Co., Ltd.

Azbil Production (Thailand) Co., Ltd.

Main Production Factories

Japan
Azbil Corporation Shonan Factory, and four other companies

China
Azbil Control Instruments (Dalian) Co., Ltd. and one other company

Thailand
Azbil Production (Thailand) Co., Ltd.

📍🟠 Global Sales and Service Framework

A sales and maintenance service framework creating value with and by customers worldwide

Utilizing our global service network, we have developed a integrated business framework to offer everything from consulting to engineering, construction, and maintenance services. We develop new equipment and solutions using the knowledge we have gained through facility operations worldwide, as we strive to maximize the life cycle value of customer facilities.

Remote monitoring center for comprehensive management and maintenance of buildings and factories (Japan)

Azbil Saudi Limited, automatic control valve manufacturing and maintenance facility

Japan
Azbil Corporation, Azbil Trading Co., Ltd., Azbil Kimmon Co., Ltd., and two other companies

China
Azbil Control Solutions (Shanghai) Co., Ltd., Shanghai Azbil Automation Co., Ltd., and three other companies

Asia
Azbil Korea Co., Ltd., Azbil Singapore Pte. Ltd., PT. Azbil Berca Indonesia, and seven other companies

USA/Europe
Azbil North America, Inc., Azbil Europe NV, Azbil Telstar, S.L.U., and three other companies

United States

- 📍 Sales
- 🔵 Development
- 🟠 Maintenance Services
- 🟢 Production