



**We will strengthen our business foundations through internal DX and create added value for our customers by digitizing our products.**

Tadayoshi Ito  
 Managing Executive Officer  
 azbil Group Digital Transformation Promotion

**As the roles and opportunities offered by automation expand, we will improve the value we provide by fostering the “creation of new business and new ways of working” through DX**

In promoting DX, the azbil Group recognizes that changes in the natural environment, the business environment, and evolving technology, and new requirements of society are expanding the role and opportunities for automation driven by digitalization. Consequently, we are endeavoring to contribute to solving social issues in business activities and further enhancing the value we provide by creating new businesses and new ways of working through digitalization. We are implementing internal DX, which will greatly increase productivity in our business activities and lead to transformation that will create new ways of working for us. In addition, we are advancing product DX to promote sustainability in our customers’ manufacturing and building operations, thereby creating new added value.

**We promote internal DX in sales and engineering divisions, development departments, and production bases, resulting in greater achievements**

In our internal DX, under the “creation of new business and new ways of working” initiative, we are using generative AI in the sales and engineering divisions in activities ranging from pre-ordering tasks to manufacturing and inspection, and we are introducing a skill transfer support system enabling veteran employees to share their knowledge. In our development departments, we are working to raise the efficiency of various tasks from design to development through DX initiatives. This includes using generative AI to create and review program source code, as well as applying machine learning models to data obtained from on-site monitoring and control systems. At our production facilities, we are implementing advanced cloud-based manufacturing execution systems (MES). These cloud services facilitate DX initiatives

at production sites, such as system introduction training done remotely, improved inventory control accuracy, and real-time visualization of production progress. To accelerate internal DX, we have set up a dedicated generative AI support tool exclusive to the azbil Group, accessible to all group companies. This tool is already being utilized by more than 7,000 employees. In addition, by promoting the adoption of low-code tools, we have built a development community of 300 members and developed 900-plus applications, more than doubling our size compared to the previous year.

**Along with product DX, we are setting up and developing a specialized organization dedicated to ensuring security**

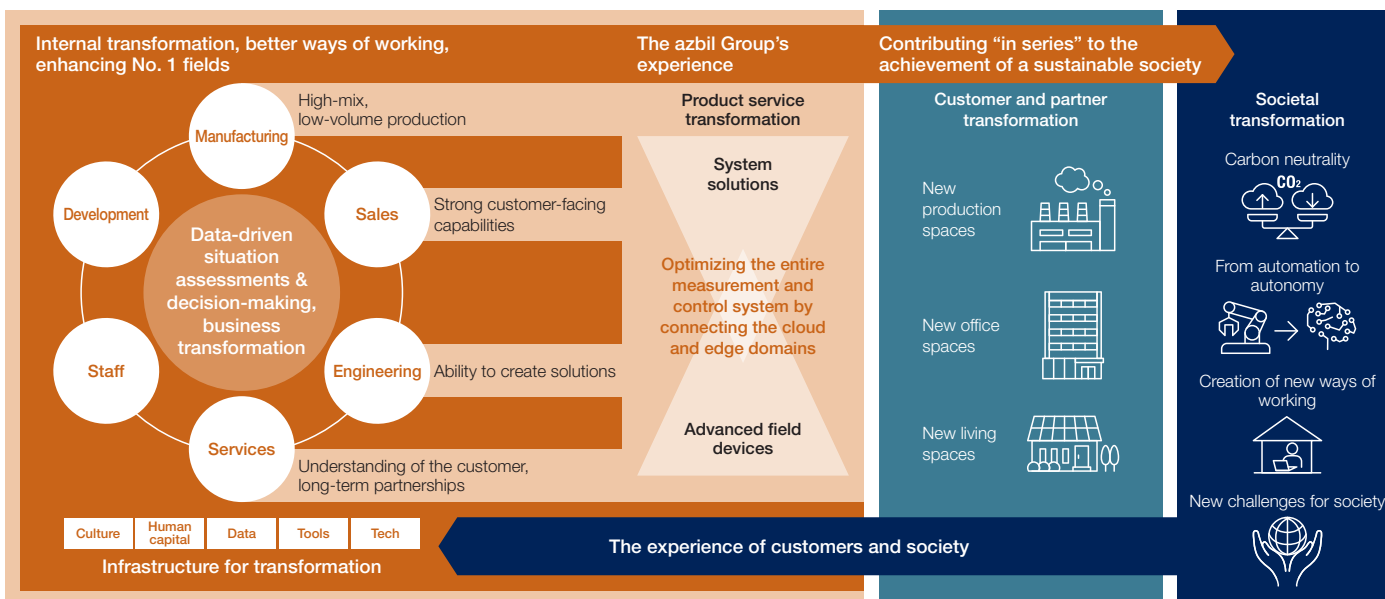
When it comes to product DX, we are deploying on-site services centered on cloud technology. Deliveries of our control valve maintenance support system, the valve diagnosis and analysis service that stabilizes production equipment and enhances their safety, grew by approximately 150%, from 111 business sites in FY2020 to 168 in FY2023. Furthermore, deliveries of our online anomaly detection system, which uses AI to support stable equipment operation at customers’ sites, prevent operational errors, prevent quality defects, and establish manufacturing conditions, more than doubled from 46 business locations in FY2020 to 106 in FY2023. These achievements serve as case studies of how we use DX and the azbil Group’s expertise to deliver value to our customers. Furthermore, our in-house specialized security organization, the Cyber Security Office, is engaged in comprehensive initiatives that cover everything from in-house systems to products and services to ensure security, which is essential for promoting our DX efforts.

Lastly, I believe that our DX promotion is not solely an internal effort but rather a collaborative initiative with our customers. The virtuous cycle of mutual influence generated by advancing DX together will lead to even greater value creation.

# Digital Transformation (DX)

## Overview of the azbil Group's DX

Contributing "in series" to the transformation of customers, partners, and society through self-transformation, with feedback for our next transformation



The azbil Group views internal DX and product DX as the two integral components of DX promotion, and we are addressing them together.

The following are case studies covering up to FY2023. For product DX, we introduce our cloud-based services for large buildings run by the Building Automation business, and for internal DX, we explain how all our employees are using generative AI as a foundational tool to drive DX initiatives.

→ pp.31–34 azbil Group Solutions Supported by Advanced Technologies and Human Resources → pp.61–66 Human Capital

### Building management evolving thanks to cloud services: Increasing convenience in energy and facility management

Azbil Corporation provides energy management, building facility management, and tenant services under the umbrella of "cloud-based services for large buildings (EM/BM/TS)." This represents a shift from a model where we installed dedicated equipment inside buildings as an optional feature for a building automation system to a model that leverages cloud computing connected to the building automation system.

Using the cloud allows us to manage and analyze the vast amounts of energy data and facility management information involved in energy and building facility management tasks. This management can be performed from any location, not just within the building. Furthermore, office users can use their work PCs or tablets to adjust the air-conditioning and lighting through Internet, enhancing user-friendliness.

Much like the trend in information systems transitioning from "owning" to "using," the introduction of cloud services in building management allows customers to flexibly modify the services they use post-installation to match the building's operations while keeping initial costs low.

This service has already been released, and we have signed contracts for about 500 applications. We will utilize the advantages of cloud-based service provision to expand our service offerings and enhance features, delivering even greater value to our customers.

#### Katsuji Ebihara

Building Systems Company  
Marketing Headquarters  
Product Marketing Department



### DX promotion and company-wide business innovation using generative AI

In FY2023, Azbil Corporation established a cross-departmental task force that has been actively pushing DX using generative AI. This task force is implementing various initiatives, including creating usage guidelines for employees, releasing a dedicated in-house generative AI chatbot, and conducting training for all employees. Through these efforts, the usage of generative AI within Azbil Corporation has steadily increased, and more than 60% of employees are now involved in business innovation that uses generative AI.

In the engineering division, veteran and newer employees collaboratively developed a generative AI-based business innovation template and are actively striving to share knowledge and improve their skills. This innovative initiative is also being expanded to the sales and service divisions, and the use of generative AI is spreading throughout the entire company. Furthermore, we are progressing with the demonstrative development of generative AI for business innovation. One notable example is a generative AI tool for hazard prediction, which is being utilized to support risk assessments and to ensure safety based on past work reports.

The task force is striving to create an environment where employees can comfortably use generative AI. To achieve this, they share information and hold webinars on a specially established site and organize exchange programs for employees. The task force also intends to actively promote the further use of AI technology in the future. By fostering and embedding a culture of generative AI use among employees, Azbil Corporation aims to pursue even greater growth and innovation.

#### Yukiyoshi Sato

Generative AI Promotion Task Force





**“Measurement and control” is becoming increasingly important.**

**As we refine our technology, we aim to solve issues for our customers and communities while creating new value.**

Hideaki Ishii

Managing Executive Officer  
azbil Group Production, Purchasing, Research & Development,  
Product Safety, Quality, & Environment

**“Measurement and control” that supports more than 100 years of history**

The azbil Group has continued to grow over the past 100 years while refining its “measurement and control” technologies. We believe that these technologies exist to contribute to solutions to society’s issues and to create new value for society and our customers under the azbil Group philosophy of “human-centered automation.” To achieve this, it is necessary to first visualize issues through measurement. Then, recognize these issues and identify specific factors based on the results to create new value. Finally, implement control measures to reach the optimal state, thereby providing solutions. The azbil Group contributes to society and our customers by providing products and services centered on automation technology, with measurement and control at its core.

In our current medium-term plan, we are focusing on strengthening our development capabilities in both systems and product areas. This approach is based on the nature of the issues facing society and our customers, as well as the trends toward increasingly sophisticated technologies. Concurrently, we aim to increase development productivity, strengthen intellectual property strategies, expand external collaborations, and mobilize human resources. These efforts are intended to accelerate development and increase the number of development projects. In addition, we are fostering a culture of innovation to ensure that these strategies are realized internally and sustainably.

**Focus on product development in both the systems and product areas to enhance competitiveness**

Our specific efforts to strengthen systems and product areas include developing cloud applications in the area of system and cloud computing. To bolster these product areas, we are focusing on the development of new valve and actuator products and services. This involves expanding development, strengthening mass production structures for microelectromechanical systems (MEMS), and pioneering new fields in actuator technology. The azbil Group excels in producing high-precision, high-quality, and durable sensors using MEMS technology, as well as high-performance and high-quality valves and actuators. To maintain our competitive edge, we develop and accumulate core technological elements in-house rather than outsourcing them.

This strategy differentiates us from our competitors. In addition, we will further enhance our competitiveness by accumulating production technology in manufacturing to build a system suitable for high-mix, low-volume production, and by utilizing data collected from products through our services.

**Actively utilize increasingly advanced technologies and strengthen development systems and mechanisms for human resource development**

We will also actively incorporate the latest technologies. For example, regarding AI, we aim to enhance our application of machine learning, which is currently used for tasks such as online anomaly prediction and detection. Moreover, we plan to boost in-house productivity by extensively utilizing generative AI and developing next-generation cloud services. In the sensing and control field, we will continue to focus on measurement and control technologies for hydrogen and ammonia, environmental power generation technology, and detection technologies using wireless, bio, and optical applications.

Strengthening our systems and developing human resources are crucial for promoting these strategies. To enhance our development function, we aim to realize priority development themes quickly by enhancing collaboration between corporate development departments and the development departments of each business. For human resource development, we will reinforce mechanisms that generate ideas to address society’s issues and those of our customers, as well as foster new business development and growth. To this end, we are establishing a talent management system that identifies the skills and qualifications of each employee, strengthens the capabilities of team members as an organization, and ensures appropriate human resource allocation. This system aims to bolster our technical, product development, and production engineering capabilities.

As technology advances and new social issues such as carbon neutrality, the circular economy, and nature positivity emerge, we believe that measurement and control will become increasingly important. To effectively seize opportunities where the azbil Group can contribute and use them as a foundation for growth, we will further refine and strengthen our technological capabilities.

# Research and Development

The azbil Group focuses on R&D infrastructure and strengthening its product and service competitiveness to quickly identify changes in markets and customers, developing products and services based on automation technology.

## Technology and product development for business expansion

In order to introduce competitive products and services in the three growth fields of *new automation*, *environment and energy*, and *life-cycle solutions*, we are monitoring changes in the business environment and technological trends and further strengthening our measurement and control technologies in field devices and system solutions.

As part of our efforts to expand our business through technological development, we are establishing and strengthening our research and development infrastructure to understand changes in the market and our customers and rapidly translate them into product development.

We particularly emphasize the link between changes in customers in the market, strengthening product competitiveness, and strengthening R&D infrastructure (technology development and human capital).

Market and customer changes require an appropriate understanding of issues such as the challenges of achieving

carbon neutrality (e.g., further energy conservation, switching to and expanding the use of renewable energy), changes in the global supply chain, and changes in customers' business models.

To strengthen our product competitiveness, we are focusing on areas such as autonomy, wellness, energy (energy saving + renewable energy, energy service provision), and cloud-based services, and we are focusing on combining AI, big data, and cloud technology to expand our product portfolio.

In terms of establishing and strengthening the R&D infrastructure (technology development and human capital), the company has identified MEMS and sensing device technology, actuator-related technology, AI technology, and cloud technology as areas in which to focus its development efforts. From the perspective of investing in human capital, the company is working to secure and develop human resources that are consistent with its business strategies to expand these three growth fields.

## R&D investment

The field of measurement and control has further evolved, with developments in IoT, DX, AI, and cloud technologies, as well as a rapid rise in social expectations on matters such as sustainability and wellness. To meet these social demands and customer needs, the azbil Group will accelerate the development of revolutionary technologies, new products, and services—integrating AI, synergizing with DX, and fostering autonomy in automation—and strengthen our efforts to achieve a sustainable society.

We will also utilize the new laboratory building (Building 103) at the Fujisawa Technology Center as a field test environment to demonstrate on-site value and promote the practical development of technologies.

In the field of system and cloud computing, we will actively adopt cutting-edge technologies such as generative AI and edge computing to promote digitalization in production spaces, office spaces (buildings), and living spaces. This will enable us to respond to customer requirements shifting from operation-oriented systems to management systems and expand our control domain. We will bolster the development of system foundations and applications across the entire company and work on creating products and services that utilize the latest technologies.

In the field of sensors, we continue to strengthen our development capabilities in MEMS and shift to more advanced kinds of measurement that measure not only quantity but also quality. We will reinforce our development and production environment with a new clean room (Building 104). We will continue developing MEMS, expand their application range, and take on new R&D challenges.

In the field of actuators, we aim to strengthen our product business and promote the development of products and services utilizing our expertise in valve-related technologies and robotics-related technologies.

By strengthening these core technologies, we aim to contribute “in series” to the achievement of a sustainable society. The azbil Group will promote the development of technologies for improving the natural environment, energy efficiency, and wellness, thereby contributing to the sustainable development of society.



- Building 103
- Better facilities for the development of central air-conditioning technology that excels in comfort, energy efficiency, and harmony with the environment
  - An innovative development environment that stimulates and activates creativity



- Building 104
- Expanded facilities for MEMS sensor development and production using world-class advanced MEMS technology as a base for developing measurement and control technology
  - Enhanced facilities for developing measurement standardization technology, which is the basis for high-precision and high-reliability products

# Research and Development

## Strengthening development personnel

We will continue to focus on training development-related personnel to increase product and service competitiveness. By fostering not only the diverse specialized skills of our developers but also employees' ability to think, learn, collaborate, improve performance, and produce results independently, we aim to develop human resources capable of creating value in the field and taking on the challenge of innovation. Furthermore, we are working to train and acquire development-related personnel who are diverse, open to new ideas and technologies, and capable of collaborating with external partners in our global development system.

To achieve this, we have introduced a skills management system to visualize the technical and human skills of engineers throughout the company, objectively and quantitatively identifying and evaluating personnel who can accelerate development for growth. We also provide education and job opportunities for autonomous career development, linking these efforts with measures for strengthening career development and skill transfers based

on individual skills. For example, with in-house engineer training, we have created an environment that enables applications and approvals to be made during face-to-face meetings about setting targets, allowing managers and subordinates to share a training plan that both parties find acceptable. Furthermore, we have established an optimal development personnel structure by hiring individuals who share our group philosophy and by mobilizing human resources in key development areas.

To foster the imagination and creativity of each individual, we have created a system whereby each development department can propose a theme they would like to work on in order to acquire new technology or improve productivity and use a certain percentage of their working hours for that purpose. Participants are provided with an opportunity to present their results once a year, which also helps improve their presentation skills. In addition, we hold large-scale R&D conferences twice a year, both in person and online, and hold presentations and exhibitions to invigorate our developers.

## Global development system

The azbil Group promotes efforts to strengthen technology and product development from a global perspective to achieve a sustainable society. As described below, we utilize research and development centers in various regions to build a globally linked system.

At our research and development center in Silicon Valley in the U.S., we promote technology development for next-generation measurement and control technologies. We conduct trend analysis on the latest technologies such as IoT and AI, engage in international standardization activities, and strengthen links with local universities and startups to promote the development of revolutionary technologies via joint research. We particularly focus on new measurement and control technologies utilizing AI to provide the market with future-ready products and services.

In Singapore, we have completed a new research and development center to accelerate technological development and deployment of products and services in the Asian market. We are strengthening its links with our research and development functions in Japan and leverage its proximity to the local market for swift application development and test marketing. We will enhance our research and development capability throughout Asia, focusing on our center in Singapore, to provide solutions that meet regional needs.

This approach enables our regional centers in Japan, the United States, and Asia to take the initiative in promoting

### Global research and development centers

(as of March 31, 2024)



technological development from a global perspective, with coordinated efforts among regional research and development centers. By identifying market changes in a timely manner and flexibly collaborating with business lines, we can swiftly develop products and services. Moreover, strengthening co-creation by linking our regional centers with external partners will generate revolutionary technologies, products, and services.

## Utilization of international standards

To promote global business, utilizing international standards is essential for market formation, certification of high quality, and assurance of interoperability. The azbil Group works on international standardization directly related to our business and has established a framework for discussing the use of international standards

company-wide to strengthen our global business. We view compliance with international standards not as a constraint but as a seed of innovation, promoting initiatives to create new value and develop technology free from past limitations and preconceived ideas.

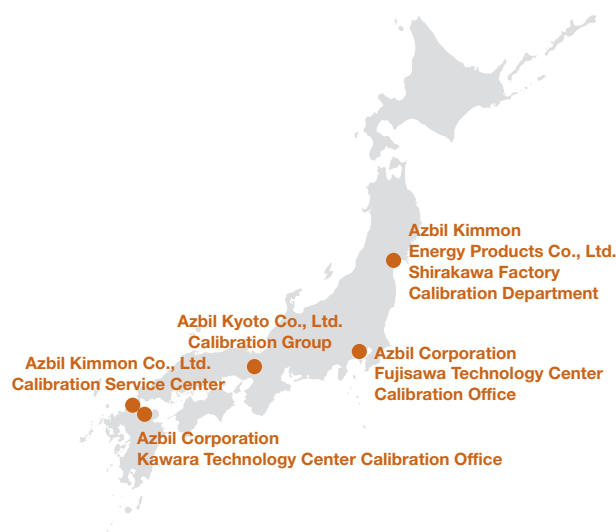
## Enhancing calibration capabilities to support measurement reliability

With “correct measurement” as the foundation for measurement and control, the azbil Group provides safety, comfort, and fulfillment for its customers. To ensure sensors and measuring instruments are accurate, calibration is applied. The measuring instruments and generators that serve as the physical measurement standards are managed with high precision. The Measurement Standards Section at Azbil Corporation’s Fujisawa Technology Center is certified by the Japanese government as a JCSS Accredited Laboratory\* with excellent calibration capabilities for temperature, humidity, electricity, pressure, vacuum, liquid microflow, gas flow, and time (frequency). The Calibration Service Center at Azbil Kimmon, the Calibration Department at Azbil Kimmon Energy Products’ Shirakawa Factory, and the Calibration Group at Azbil Kyoto are also certified as JCSS Accredited Laboratories, maintaining top-class calibration capabilities in Japan. These high-precision physical standards support the azbil Group’s correct measurements. Since it began operation in 2022, the calibration office (in Building 104) in the Fujisawa Technology Center has been visited by many customers and others, who have witnessed the high quality of the azbil Group’s measurement abilities. We will continue to communicate the importance of correct measurement internally and externally through tours of the calibration office.



Calibration office at the Fujisawa Technology Center and a (center) high-precision vacuum calibration system

## azbil Group calibration locations



Company	Location	Calibration capabilities
Azbil Corporation	Fujisawa Technology Center Calibration Office	Temperature, humidity, electricity (current, voltage, resistance), fluid flow (gas, liquid), pressure, vacuum, time (frequency), length, weight, torque
	Kawara Technology Center Calibration Office	Temperature, humidity, electricity (current, voltage, resistance), pressure, time (frequency), length, weight, torque
Azbil Kimmon Co., Ltd.	Calibration Service Center	Flow rate (gas)
Azbil Kyoto Co., Ltd.	Calibration Group	Flow rate (liquid)
Azbil Kimmon Energy Products Co., Ltd.	Shirakawa Factory Calibration Department	Flow rate (gas)

\* Information on the categories registered and certified under JCSS is provided on the website of the National Institute of Technology and Evaluation (NITE).

## KPIs for technology and product development

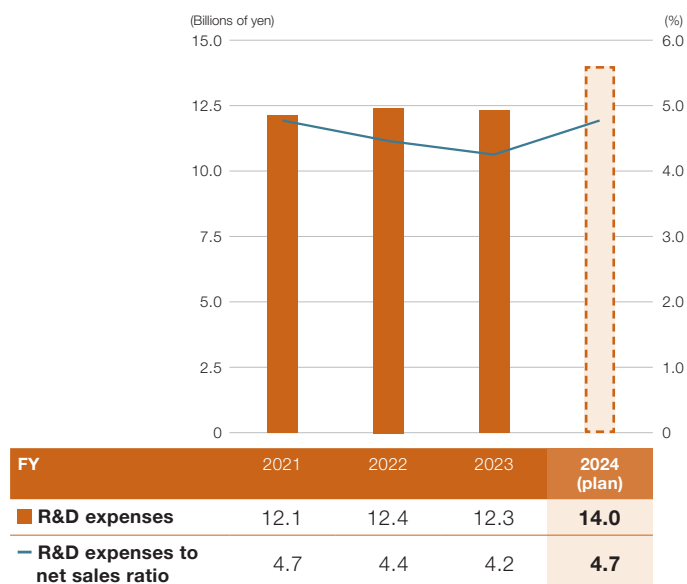
To quantitatively evaluate the progress and results of developing technologies, products, and services, we have set the following KPIs and promote strategic efforts based on these indicators.

- Ratio of R&D expenses to net sales: Measures the ratio of investment in R&D to net sales to check the allocation of investment
- Product sales: Evaluates whether the development of technologies, products, and services directly contributes to sales
- Ratio of new products: Measures the ratio of new products to product sales to identify our capability to develop products and services

We also appropriately revise our research and development strategies and investment to achieve sustainable growth by monitoring the effects of our developed technology, products, and services over time.

For research and development, we invested ¥12.1 billion in FY2021, ¥12.4 billion in FY2022, and ¥12.3 billion in FY2023. We plan to invest ¥14.0 billion in FY2024, which will enable us to aim for sustainable growth by enhancing our investment in technology, product, and service development, providing revolutionary solutions. This will increase our competitiveness in the global market and enable us to swiftly release products and services that meet customer needs.

## R&D expenses, R&D expenses to net sales ratio



# Research and Development

## Design management

As we aim to achieve a secure and comfortable social environment through the co-creation of people and technologies, we promote human-centered design and development, which includes improving usability and user experiences in the development process of products and services. The azbil Group's automation technology has long provided peace of mind and comfort to people in various places. To ensure this technology contributes "in series" to the achievement of a sustainable society, we believe its design must evolve with changes in work styles and lifestyles. It is essential to deeply understand not only technical aspects but also how people interact with our products and use our services.

The design of products that people directly see and interact with, such as interfaces or products placed in office spaces and production sites, should be safe, convenient, and conscious of well-being. While improving quality, performance, and maintaining safety in product and service development, we must also address issues such as reducing environmental impact and promoting recycling. A major theme of product and service development is solving these issues



The model V8C sapphire capacitance diaphragm gauge, which won the 2023 Good Design Award

with new technologies and ideas, and the field of design supports development with a focus on usability.

In the company, we provide design training to development personnel to improve their creative thinking and move closer to the co-creation of people and technologies. Such educational activities enable us to gather human resources with diverse perspectives and cultivate the ability to produce better designs.

The various products developed through these efforts have been honored with prestigious design awards both in Japan and abroad.



The model F4Q digital mass flow controller, which won the 2021 Good Design Award and 2022 iF Design Award

## For customers: Development of measurement and control technologies

On August 1, 2023, the azbil Group launched a website called "Learning Plaza" for customers in the factory or plant business, providing educational resources for learning basic knowledge about measurement and control. The website provides knowledge on communication and explosion-proofing standards, as well as the operating principles and features of measurement and control devices, to improve technical capability at plants. The content includes basic information on temperature control and the four main variables of processes, along with videos introducing the thoughts of developers and product features. The website is available to anyone registered as a member, and we plan to publish new content to meet customer needs in the future. We aim to grow together with our customers, based on the principle of "human-centered automation."



A website called "Learning Plaza," which is currently in Japanese only

Ask the Experts:

## “Measurement and Control” Technologies Create New Insights and New Value

### What are your thoughts about the “measurement and control” that the azbil Group pursues?

Measurement and control form the foundation of all science and technology. Since its foundation, the azbil Group has consistently refined these technologies and systemized the knowledge gained in the process. Currently, it not only supports Japan’s social infrastructure but also contributes to the global environment through its accumulated knowledge and technology. The measurement and control that the azbil Group takes pride in provide comprehensive total solutions from the starting point to the application stage, and that is the source of their competitiveness.

I believe their impact on society and the environment is highly significant as well. Just as individuals can widely disseminate their claims through social media, every single initiative can be spread to customers and the world with equivalent speed and breadth through the B-to-B business model. This especially applies to social infrastructure, many parts of which have reached the end of their service life and are due for an overhaul. It is a chance to incorporate new ideas and knowledge into social infrastructure through their business, and it is an extremely significant opportunity from the perspective of contributing to global environmental preservation as well.

### Based on your areas of expertise and research, what do you expect from the azbil Group?

Various organizations and individuals are thinking about what they can do to create a better environment in response to environmental issues. Depending on the person, “a better environment” might be a place that is easier to live in, or it might mean beauty. However, we will not be able to create a better environment unless we are able to quantitatively measure each of these elements and convert them to data. That said, there are many elements that are difficult or even impossible to measure. For those cases, it will become increasingly important to obtain measurements and data from a two-dimensional aspect or a three-dimensional spatial viewpoint instead of measuring them in points. As a result, the vague concept of “a better environment” will become more visible as a specific goal.

In the area of agriculture, for example, the surface temperature of the leaves of rice plants spread out in a field is extremely important to understanding the growth of the plants. However, measuring the surface temperature of the leaves of every single rice plant is difficult because of factors such as the direction of the wind, exposure to the sun, the condition of the leaves due to watering, and the mutual effect of leaves on each other. Right now, the measurement is done manually, but there is the possibility that the process of measuring the surface temperature of the leaves of each individual plant in the whole field will have a major impact on controlling the growth of the rice.

If it became possible to measure data like this, which has an area or spatial breadth, it would almost certainly lead to unprecedented innovation. The approach that uses not just the refinement of a single sensor but rather a network of connected sensors to comprehensively measure, control, and solve issues that were difficult to address because they are hard to measure or control will grow in importance in the coming years. I believe the azbil Group has the potential to make that possible.

For humanity to obtain fresh knowledge in the vast field of the global environment, I hope the azbil Group will play a role as a trailblazer and innovator in measurement and control.

### Do you have any advice for the azbil Group from your expert standpoint as it tackles sustainability-related social issues?

I think Japanese people excel in making focused efforts to tackle a given problem, but they seem to struggle with an approach that involves reframing an issue while considering its full picture and ripple effects and then working toward a solution.

For example, we must think of carbon footprints holistically when trying to make zero emissions a reality. There are times when a different problem arises as a side effect when you try to fix something. That is why you must take a comprehensive view of the problems that need to be solved and address the issues that arise. Achieving sustainability will not be possible by addressing only part of a problem or by extracting only the issues you can solve and working on them.

The azbil Group has a broad and significant influence on society and the environment. I have great hopes and expectations for its success in the future.



**Keiko Takahashi**  
Senior Researcher, Professor  
Comprehensive Research  
Organization, Waseda  
University

She holds a Ph.D. in Engineering from the Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology. In April 2021, she assumed her current position after working at Kao Corporation, the University of Cambridge in the U.K., and serving as the head of the Center for Earth Information Science and Technology, Counselor for Business Management, and head of the Yokohama Institute for Earth Sciences at the Japan Agency for Marine-Earth Science and Technology. She is the area supervisor in the mission area of “New Social Challenges” in the Japan Science and Technology Agency’s JST-Mirai Program, an area supervisor of the “Fugaku” outcome creation acceleration program, and a research professor at Nippon Telegraph and Telephone Corporation (NTT). She has been a member and an associate member of the Science Council of Japan and a committee member of several science and technology councils of the Ministry of Education, Culture, Sports, Science and Technology. She has also served as president of the Society of Instrument and Control Engineers, president of the Visualization Society of Japan, and as a director of the Japan Society for Industrial and Applied Mathematics and a director of the Japan Society of Fluid Mechanics. She has been an International Federation of Automatic Control (IFAC) Technical Board member, an Asian Network on Climate Science and Technology (ANGST) International Steering Committee member, and a National Science Foundation (NSF) Electronic Proposal Review member, among other positions. Her areas of specialization are ocean-atmosphere interaction and global environment prediction, the development of technology for super large-scale simulations and massively parallel/high-speed measurement methods, and the development of super large-scale data processing technology.



# Manufacturing and Procurement

## Improving the global production system

As the azbil Group expanded globally, a three-pronged production system with bases in Japan, China, and Thailand was established. At each location we are strengthening our production and procurement network, improving our sales and distribution channels for direct sales and shipment to various markets, and working to enhance productivity and expand production volume while lowering costs.

In April 2022, we completed a new factory building at our production base in Dalian, China. This facility has been equipped with automated processes for large body processing, painting, and inspection to accommodate increased production, especially of industrial valves. In addition, we are expanding our local procurement efforts, aiming to reduce costs and broaden our supplier network.

At our Thailand production base, we have been diversifying our production models, focusing on component products, and improving our production infrastructure. In April 2024, we completed the construction of a new factory building to expand production models for products that require advanced production engineering, such as electromagnetic flowmeters for the industrial market. We will be installing various production equipment, including actual flow calibration equipment.



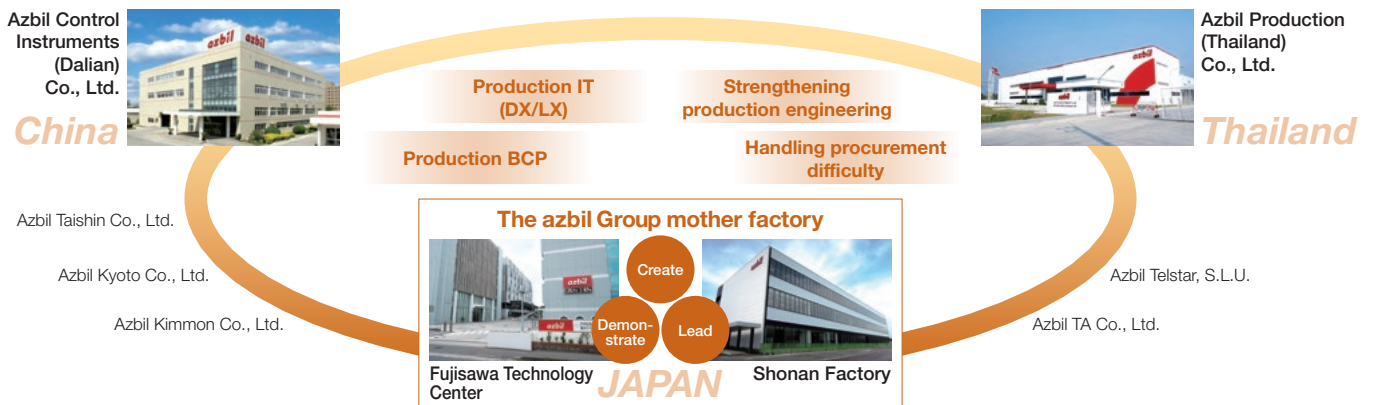
The new factory building in Dalian, China, which has begun operation. An advanced control valve production system is under construction.



The newly completed factory in Thailand. We plan to build production lines for electromagnetic flowmeters and other products.

## The global production system

### The azbil Group's mother factory leads a strong global production system



## Production upgrade initiatives led by the mother factory

As part of the global production system development, we are strengthening the collaboration between the Shonan Factory, which is our core production facility, and the Fujisawa Technology Center's technology R&D functions. We continue to improve their function as the "mother factory" of the Group.

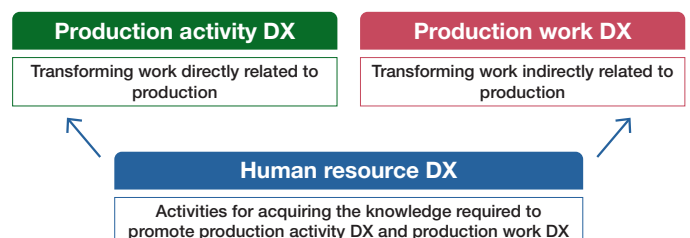
## Production IT (DX/LX)

Our production DX initiatives consist of three activities: production activity DX, production work DX, and human resource DX. Production activity DX aims to transform tasks directly linked to production by promoting digitalization and IT integration, with a focus on strengthening data connectivity. Production work DX aims to make indirect work more efficient by enhancing business collaboration through the utilization of data in a data lake. The digitalization of workflows and visualization of accumulated data fall into this category. Human resource DX focuses on people and involves activities for acquiring the knowledge required to promote DX.

Due to the gradual deterioration of our individual production management systems that we have used for separate product series, we are implementing production legacy transformation (LX) efforts to

build an overall optimization system that links with our core systems while still taking individual product characteristics into account.

### Three pillars of production DX



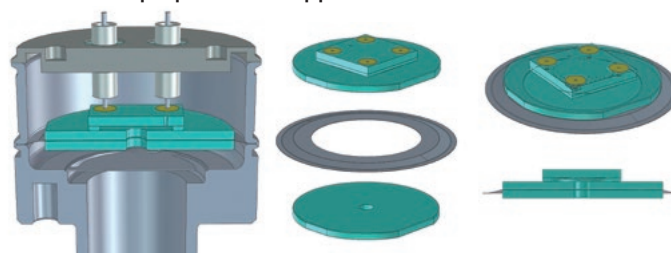
## Strengthening production engineering

The azbil Group is innovating its production processes through the advancement of production engineering with the aim of building competitive production lines. Specifically, we are developing more advanced micro component bonding, adhesion, assembly, and precision machining technology, with a focus on MEMS sensor packaging. At the same time, we are developing production methods and applying them to our production lines to facilitate unique and advanced manufacturing, such as the utilization of new materials and innovative material processing.

We are also promoting the creation of more advanced processes and production lines by incorporating production IT engineering into our production. For example, we have switched from visual inspection to automatic inspection performed by high-resolution cameras and AI, and we are building a system that integrates information and materials by utilizing an IoT environment to link QR codes of products with production information.

We are expanding the scope of application of these initiatives from our mother factory to production bases in Japan and overseas. We are striving to increase business competitiveness by maintaining and improving quality on a global basis.

### MEMS sensor packaging technology that takes advantage of the material properties of sapphire



Vacuum measuring devices that take advantage of the exceptional properties of sapphire are made possible by the azbil Group's sensor packaging technology. These devices feature highly airtight bonding with a nickel-based alloy, which, like sapphire, has high heat and corrosion resistance.

### Ensuring reliability through image inspection of joints



We have developed an image inspection technology that evaluates the reliability of the joints by observing them with a special microscope.

## BCP for manufacturing and procurement

The azbil Group's business continuity planning (BCP) limits the impact on our customers of risks that threaten production or distribution in Japan and overseas, including natural disasters and other unexpected situations such as the COVID-19 pandemic or emergencies. To improve production robustness, we are implementing the following BCP initiatives with the aim of restoring production within an acceptable time period.

### ■ Production line BCP

We create and periodically update plans for restarting production lines. Once a year, we conduct BCP training to check/improve our plans and procedures.

### ■ Component BCP

We estimate the time required to acquire alternative parts or switch suppliers, maintain a BCP inventory for that period, and prepare part models.

### ■ Production site distribution BCP

We plan responses to large-scale factory disasters and disasters at distribution sites. We categorize disasters by severity and create response plans for each level.

### ■ Part procurement difficulty BCP

The recent global difficulties in procuring components, including semiconductors, is gradually easing. Until now, we have implemented various countermeasures, and we are now standardizing that knowledge to use in future procurement difficulties.

### ■ Emergency BCP

This plan details methods for handling distribution problems arising from incidents such as international disputes. For products that require time to initiate production, we are increasing our inventory levels and exploring multi-site production.

### ■ Improving disaster prevention at factories

We are improving our readiness to respond to natural disasters at our production sites. These measures include on-site patrols, the installation of waterproof walls, and the creation of building inspection manuals for post-earthquake assessments.

## Enhancing governance for the global production system

In the development of production bases in Japan, the expansion of overseas production centers, and the development of a global production system in conjunction with the expansion of domestic production bases, we have secured a certain level of governance at our mother factory through the deployment of various standardization measures, operation based on these standards, and by fostering and promoting quality awareness. We will further strengthen governance to ensure that, from the customer's perspective, we consistently deliver products of azbil Group quality.

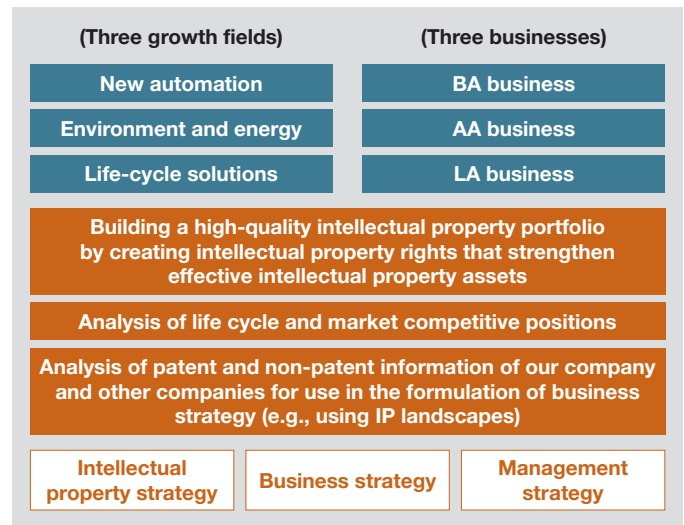
# Intellectual Property

To enhance the value creation of the entire group, the Intellectual Property Strategy Department closely coordinates with business departments and R&D departments to strengthen and reform the processes for creating and utilizing intellectual property. We analyze both our own and other companies' patent and non-patent information to build a high-quality intellectual property portfolio that enhances our enterprise value from the perspectives of life cycles and market competitiveness.

As the azbil Group develops the three growth fields defined in our medium-term plan, we utilize intellectual property information to verify business hypotheses in technological and product development as part of our offensive intellectual property strategy. For our defensive intellectual property strategy, we conduct activities to protect existing intellectual property, supporting business continuity and peripheral development in existing business areas. By doing so, we maintain the important intellectual property that underpins our business strategy.

To support this strategy, we are focusing on cultivating experts, including specialists in intellectual property and intellectual property analysts certified by AIPE. We are also deploying our IP landscape concept to business units and R&D departments, stationing employees from these units/departments in the Intellectual Property Strategy Department to enhance their understanding. In addition, for managers working in R&D departments, we provide education on the process of creating new intellectual property and disseminate related information.

## Initiatives for strengthening intellectual property capabilities

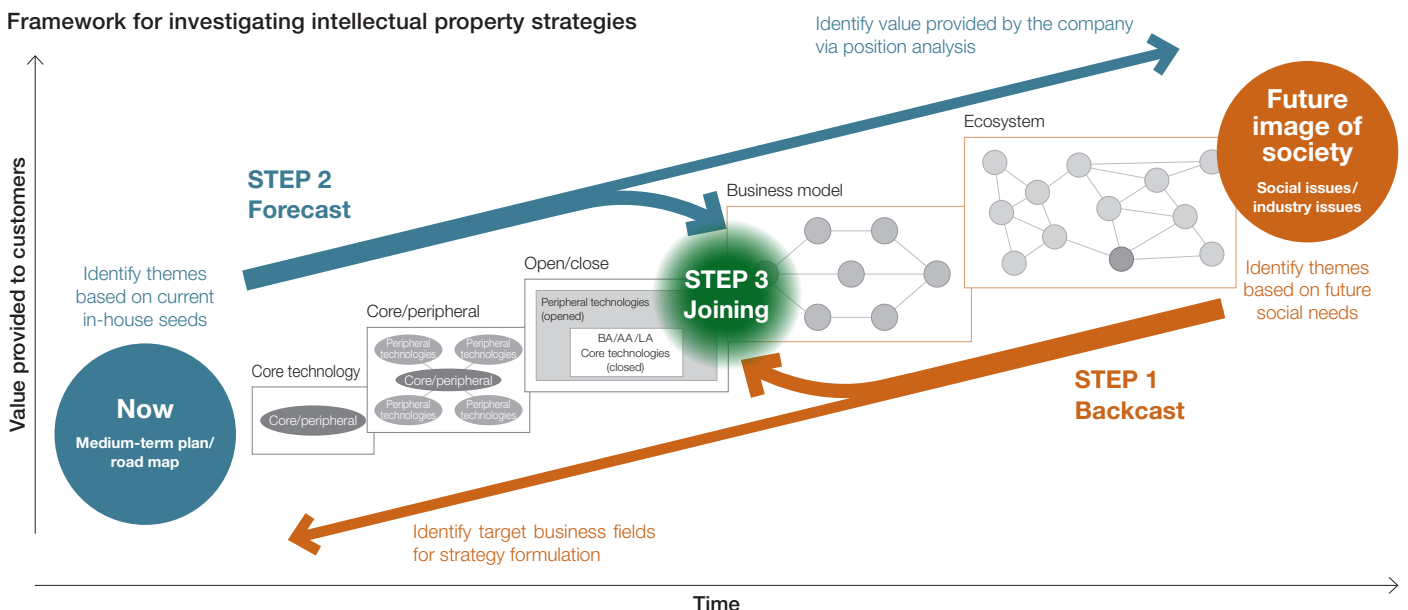


## Approach to company-wide intellectual property strategy

In the current business environment, the value of intangible assets, including intellectual property, is rapidly increasing and playing an important role in business activities. Investors are requesting companies to disclose non-financial information, particularly on intangible assets. The effective management of intellectual property directly impacts competitiveness in the international market. Considering the latest revisions to Japan's Corporate Governance Code, we aim to utilize intangible assets more effectively and promote the formulation of a company-wide intellectual property strategy to increase our enterprise value.

As a specific approach, we have adopted the backcasting method. This process enables us to predict future developments in automation technology and then work backward to clearly define the necessary actions to achieve our ideal state in the three growth fields. By identifying the gap between our current situation and this ideal state, we can develop an intellectual property strategy that aligns with our business strategy to close the gap. Through these efforts, we aim to achieve revolutionary growth and build sustainable competitiveness.

## Framework for investigating intellectual property strategies



# Quality Assurance

We aim to ensure quality assurance, product safety, and product reliability to satisfy customers and users throughout the product and service life cycle, from the planning of products that meet needs to final disposal. For this reason, the azbil Group has established and implements basic policies.

## Initiatives for quality assurance, safety, and security

To ensure that our customers can use our products and services safely and with peace of mind, two corporate departments, the aG Quality Assurance Department and the Department of Safety Assessment, provide guidance and supervision of quality throughout the Group and ensure product safety and reliability through safety audits.

Through the work of the azbil Group Quality Assurance Committee, we strive to prevent the occurrence or recurrence of quality problems, address major risks through mitigation strategies, and establish a crisis management system for handling emergencies. We also endeavor to guarantee the safety of our products and services by promoting safe designs based on our Safe Design Standards document and applying the mechanisms in our safety risk assessment system.

### The azbil Group's quality assurance and product safety efforts



## Quality assurance and product safety of the group companies and business lines

We have built a quality assurance system for the business lines of Azbil Corporation and the companies of the azbil Group, focusing on legal compliance, quality assurance, and safety assurance. This enables us to ensure quality and safety when providing products and services across our various businesses.

### (1) Design quality

As a manufacturer, we ensure the quality and safety of our products and services. During the product development process, we focus on reliability and safety, designing processes and equipment that prevent quality or safety nonconformities.

### (2) Production quality

At our production sites, we strive to prevent the input, creation, and output of nonconforming products through standardized work and inspection procedures for each product. We ensure strict quality control and change management (4M\* change management) to implement on-site quality improvements and routine management.

\*4M: Man, Machine, Method, Material

### (3) Service quality

For our services, we establish systems for work standardization and quality control like those for our products, preventing nonconforming services. For example, in selecting construction materials and designing work processes at construction sites, we implement appropriate responses and conduct in-house inspections when required. In the operation phase after construction, we provide maintenance services to ensure comfortable office spaces, and achieve energy savings and safety.

### Quality assurance and product safety of the azbil Group business line

