

AsahiKASEI



Intellectual and
Intangible Asset
Governance Guidelines

Intellectual Property Report 2024

Asahi Kasei Group

Asahi Kasei Corporation



**We, the Asahi Kasei Group,
contribute to life and living
for people around the world.**

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Note

The scope of this report is Asahi Kasei Corp. and its consolidated subsidiaries.

The plans, forecasts, and strategies described in this report are based on information available at the time of its preparation and represent our future outlook. These plans are reviewed based on changes in the business environment and progress in technological innovation, and do not represent a commitment or guarantee of future plans or results.

Message from the President



With the issuance of the Asahi Kasei Group's Intellectual Property Report 2024, I would like to convey my heartfelt greetings. Our “Medium-term Management Plan 2024—Be a Trailblazer” has now entered its third and final year. Looking back at the period of the medium-term management plan, we experienced various changes that had a significant impact on our business operations, including Russia's invasion of Ukraine, soaring resource and fuel costs, worldwide inflation, and the recent sharp yen depreciation. Amid this environment, we are implementing a transformation of our business portfolio for the next medium-term plan and beyond, towards 2030.

Furthermore, we are reforming our business value creation model to increase our corporate value. For example, in the upstream materials business represented by our Material sector, rather than our traditional growth driven by expanded investment, it is important that we consider how to build a platform that connects to our customers while allowing us to maintain a minimal amount of assets. As part of this process, intellectual property is the key to building a strong platform, and we will continue our company-wide efforts to create and utilize intellectual property. Furthermore, by focusing on human resource development and combining these intangible assets, we aim to build a strong business model and to achieve sustainable growth.

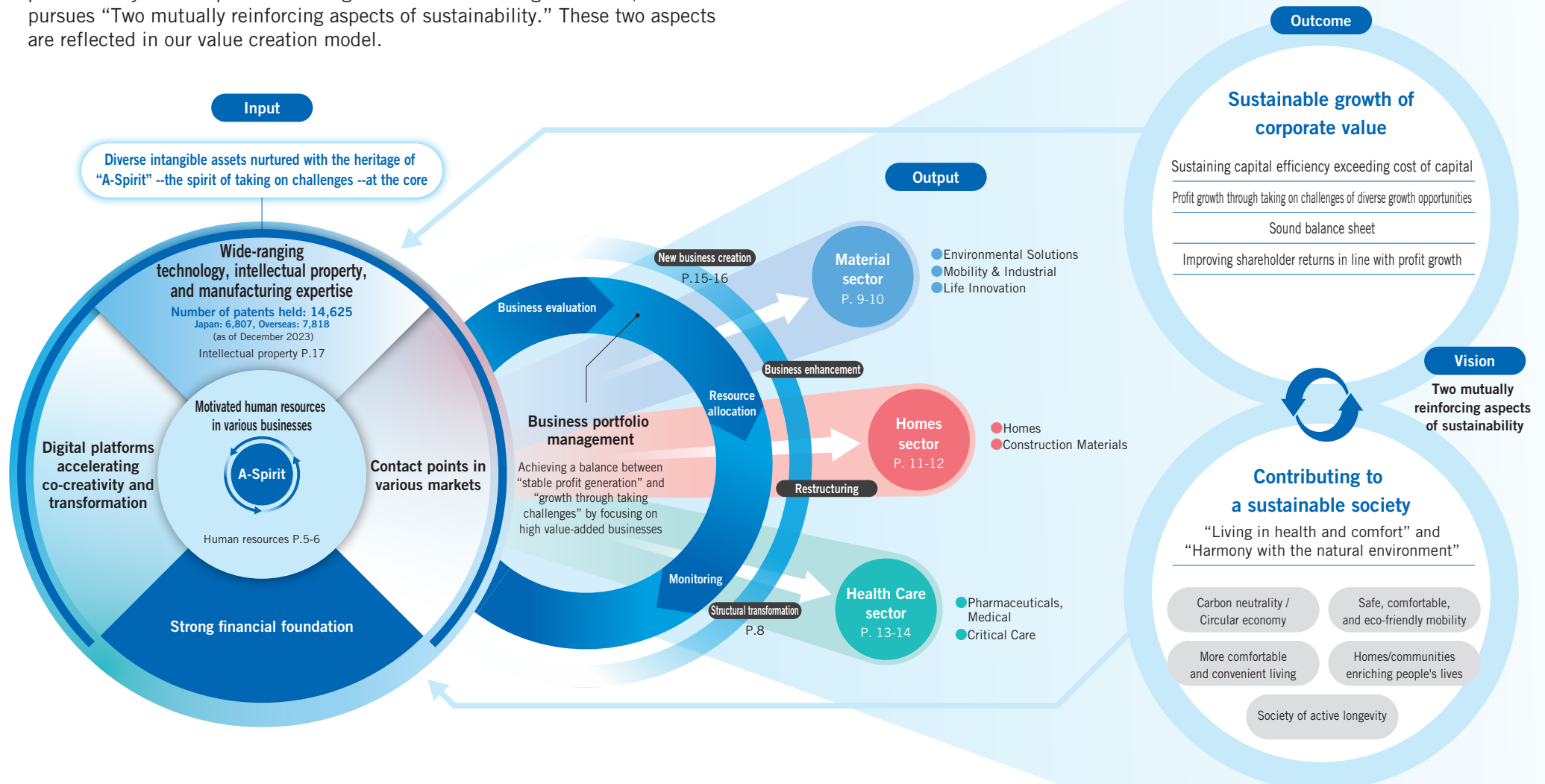
In this report, through real business examples in the three sectors of Material, Homes, and Health Care, we explain how our IP activities contribute to increased corporate value. I hope that the report will help to deepen your understanding of AsahiKasei's IP strategy.

Koshiro Kudo
President and Representative Director

Position of IP Within the Value Creation Model

Contributing to life and living has been Asahi Kasei's mission for more than 100 years since our founding. Driven by this mission, by working to resolve various social issues based on the needs of the times, our businesses have repeatedly grown and evolved, leading to our three current business sectors. As part of this process, Asahi Kasei has acquired and accumulated various intangible assets not possessed by our competitors. Through these diverse intangible assets, Asahi Kasei pursues "Two mutually reinforcing aspects of sustainability." These two aspects are reflected in our value creation model.

This Intellectual Property Report focuses on our IP among our diverse intangible assets, and explains how our IP organization contributes to increasing corporate value through our value creation model.

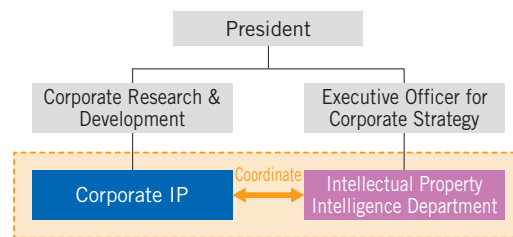


Intellectual Property of the Asahi Kasei Group

Activities of Our IP Organization

Our Company's IP organization comprises two bodies: Corporate IP, which is established within Corporate Research & Development, and the Intellectual Property Intelligence Department, which is established directly under the Executive Officer for Corporate Strategy. These bodies cooperate under the mission of protecting profits and maximizing corporate value by providing support corresponding to evolving business environments with IP expertise.

IP Organization



► Mission of Corporate IP

Corporate IP aims to strengthen the following five focus activities.

1. Construction of an IP network that contributes to businesses based on a scenario for IP rights utilization
2. IP clearance to protect business execution
3. Implementation of IP activities to support globalization of businesses
4. Contribution to business innovation, from the perspective of IP, by digital transformation
5. Implementation of systematic human resource development plans over the medium- to long-term

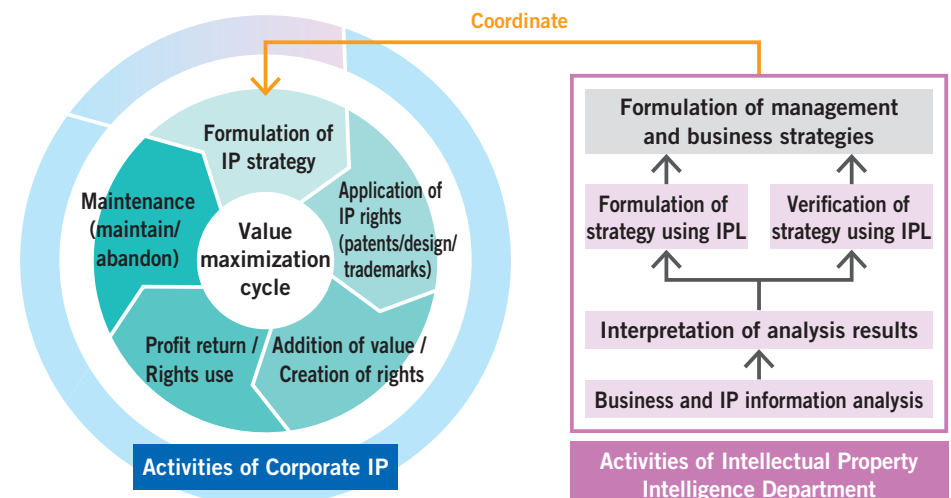
► Mission of the Intellectual Property Intelligence Department

Our Intellectual Property Intelligence Department acts as the core of our IP activities that contribute to our management and business strategy formulation and operates under the slogan “to realize further increase in corporate value through intangible assets.” Using IP Landscaping (IPL) as a tool, we are focused on 1) making IP contributions to our management and business strategy formulation by proposing strategies to utilize our intangible assets, and 2) strengthening relationships with our stakeholders through IP information disclosure.

► Activities to maximize our IP value

To contribute to the formulation of management and business strategy, the Intellectual Property Intelligence Department conducts business and IP information analysis, using IP and incorporating technology, and formulates and proposes strategies based on the interpretation of these results. The “technology-based strategy proposals” made by the Intellectual Property Intelligence Department contribute to higher level decision-making by offering new technological perspectives to our management. Furthermore, by making strategy proposals that combine strategies to utilize our IP and intangible assets, we aim to maximize the value of that IP and intangible assets.

Corporate IP receives these proposals and formulates the necessary IP strategies to contribute to realizing our business strategy. By promoting a “value maximization cycle” to steadily implement our IP strategy together with the business departments, we contribute to maximizing the value of our IP and intangible assets.

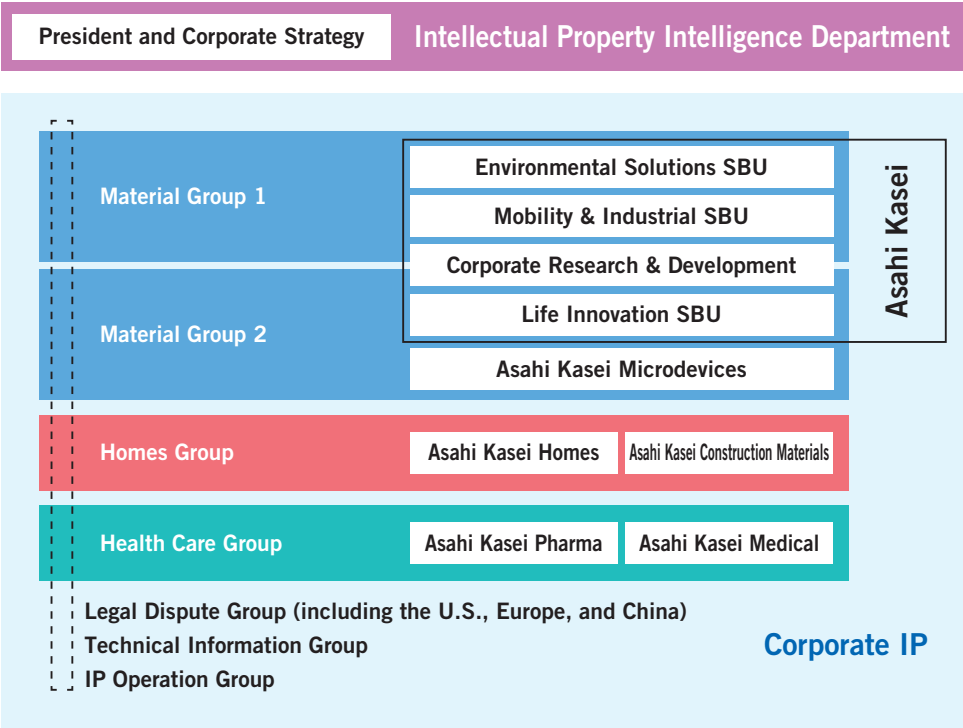


Value Provision System by Our IP Organization

IP organization structure

Corporate IP acts as the centralized IP organization for our Head Office divisions in assigning IP specialists to each business department and serving to interconnect our businesses. Through meetings with the leaders of our business departments, our IP personnel look over and review the IP activities of each business department and roll out our unified IP policy to each business department to strengthen IP governance throughout the Group.

The Intellectual Property Intelligence Department, as the body directly under the Executive Officer for Corporate Strategy, has the function of providing analysis results using IPL and incorporating technology mainly to our management. Through this process, we provide an environment in which our management can make effective decisions to ensure that the allocation of management resources, such as investment in intellectual property, and strategies regarding the business portfolio contribute to the company’s growth.

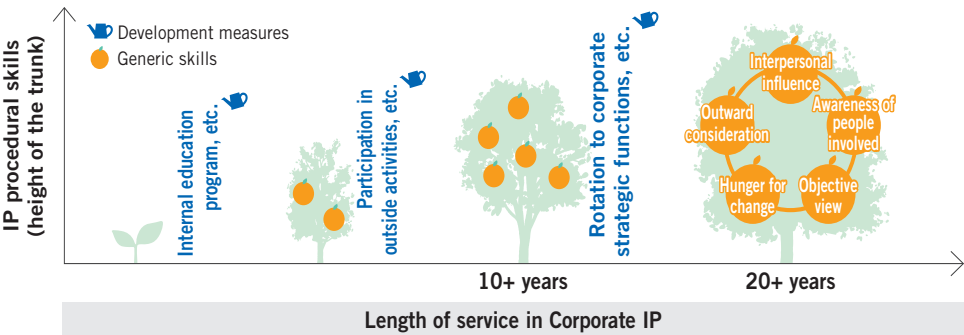


Development of human resources to support our IP activities

Asahi Kasei’s IP activities are supported by the IP personnel that belong to our IP organization and all our employees who create IP and intangible assets. To build a system capable of continuously promoting IP activities, we provide education to both Corporate IP members and all employees.

For our Corporate IP members to acquire IP expertise and generic skills that will allow them to become IP specialists, we systematically implement organizational development measures. In addition, we provide all employees with training courses to ensure that they acquire enough knowledge to carry out basic IP activities on their own, and encourage them to attend these courses systematically.

Development of Corporate IP members (development of IP specialists)



Development of all employees (company-wide education)

Target		Group-wide training				Training by business field		
		In-person		E-learning		In-person		
Managers		Strategic Course		Basic Knowledge	Patent Drafting	DX Inventions Basic Course	(planned) Copyright and Unfair Competition Prevention Act Course	Customized for each business field
Practical-level personnel (including new employees)	Technical	Basic for technical						
	Clerical/ Technical	Basic for clerical						
In-person training for new employees		New employee training						

The Diverse Human Resources that Make Up Our IP Organization

Corporate IP and the Intellectual Property Intelligence Department employ a **diverse human resources structure to realize a wide range of initiatives aimed at maximizing the value of our IP and intangible assets through their protection and use**. To retain human resources with diverse sensibilities and broad-based knowledge and experience, we make use of gender-neutral appointments, development of young employees, transfer of personnel from different divisions, mid-career hiring and so on. As a result of these initiatives, Asahi Kasei’s IP organization has evolved into a specialist organization with a rich diversity of human resources, aiming to achieve **an organizational structure that can flexibly respond to the era of VUCA where changes are significant**.

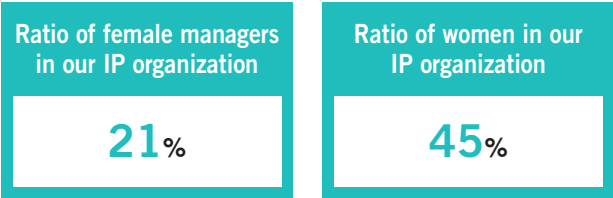
The significance of diversity in utilizing IP and intangible assets



▶ High ratio of female managers*

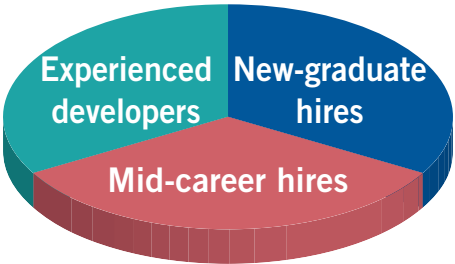
The ratio of female managers in our IP organization is 21%, which is a high level compared to that of other Japanese companies. Not limited to management positions, the ratio of female employees in the IP organization is high at 45%. Asahi Kasei has provided work environments that respond to different life stages and continuously supported the growth of our employees, which we believe has led to the increase in the ratio of female managers. Increasing the diversity of employees in management positions contributes to greater flexibility in our IP operations through a variety of leadership with diverse sensibilities. Workplace management that takes into account the circumstances of individual employees as well as diverse workstyles is leading to a further increase in diversity and a sustainable IP organization.

*Ratio of female managers: the proportion of women in business management positions



▶ Broad career composition

Technological innovation represented largely by AI is accelerating in recent years. To respond flexibly to cutting-edge technologies and to contribute to our business from the perspective of IP, both the flexibility to accept new technologies and IP expertise backed by experience are required in addition to diverse technological expertise. In this way, to respond to new IP issues, we believe that an organizational structure with employees of a broad range of ages is effective, and the Asahi Kasei’s IP organization is composed of a well-balanced mix of three groups: “new-graduate hires” who have been developed by Corporate IP since they newly graduated, “experienced developers” who have experience in the technology development division, and “mid-career hires” who have been recruited from outside the company.



▶ Diverse technological expertise

Asahi Kasei operates multiple businesses in each of our three business sectors. To maximize the value of IP and intangible assets in each of these businesses, IP experts with diverse technological expertise are required. By utilizing our human resources by transferring engineers belonging to technology development departments to our IP organization and by acquiring technological experts from outside through mid-career hiring, we are constantly securing human resources with diverse technological expertise. To handle the promotion of DX activities in recent years, we have been working to enhance our IP expertise in DX-related technologies by recruiting personnel from the electronics industry taking the lead and by educating members of our Corporate IP.

Core areas of technological expertise

Machinery	Electronics
Chemicals	Printing
Pharmaceuticals	Telecommunications

The Process from IP Activities to Corporate Value Increase

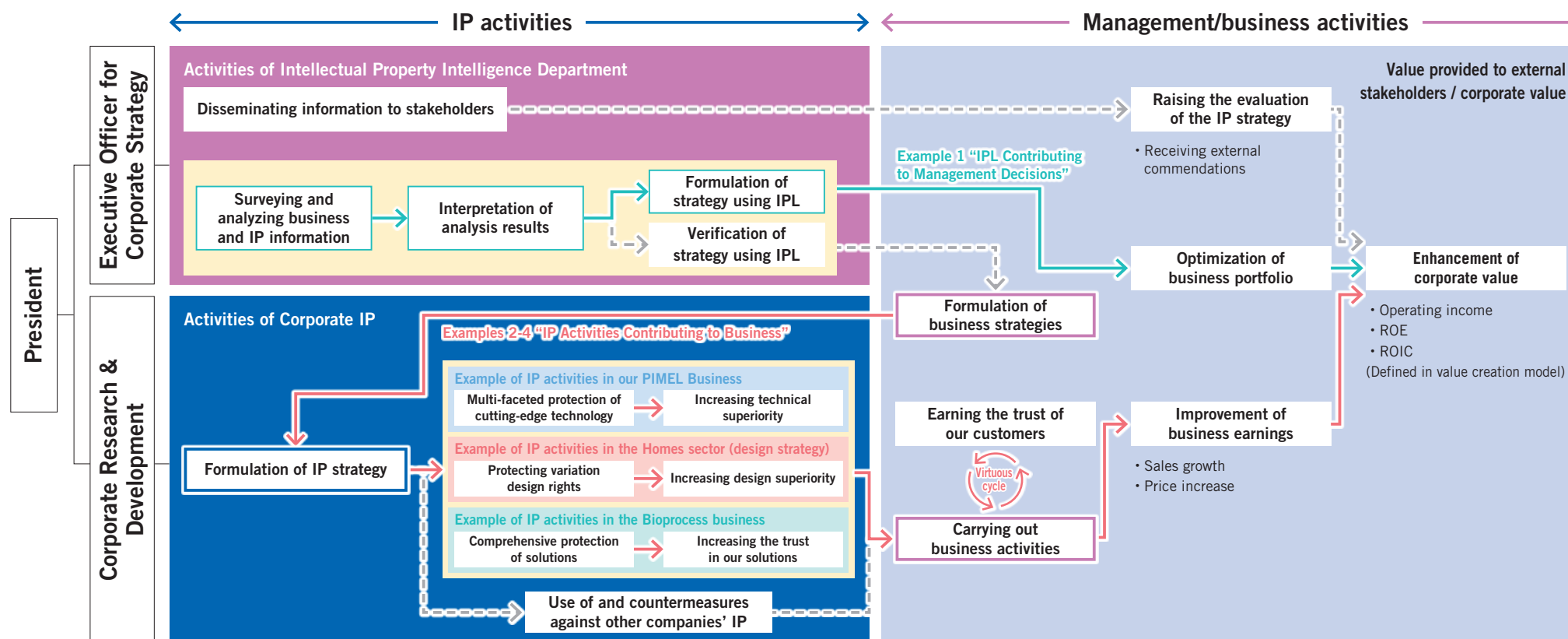
Activities related to IP and intangible assets (intellectual property activities) based on the mission of our IP organization are connected to corporate value through various business activities. To illuminate how this connection exists and contributes to increased corporate value, we have mapped out the process from our IP activities to increased corporate value (corporate value improvement process).

Through examining our corporate value improvement process, it has become clear that our IP activities have a structure that contributes to improving our corporate value through management decisions and business activities. On the other hand, the process structure that leads from intellectual property activities to increased corporate value differs by business sector, meaning IP activities that fit each set of business activities are required.

► Verification of the process of increasing corporate value

To deepen understanding about this process, we have provided actual business examples and verified specifically how IP activities contribute to them.

By increasing the value provided to our customers through the formulation and implementation of our businesses strategies, we have earned both customer satisfaction and trust in Asahi Kasei, forming a virtuous cycle that leads to the acquisition of further business opportunities. By protecting our IP and intangible assets, our IP activities contribute to maintaining and expanding this virtuous cycle.



Example

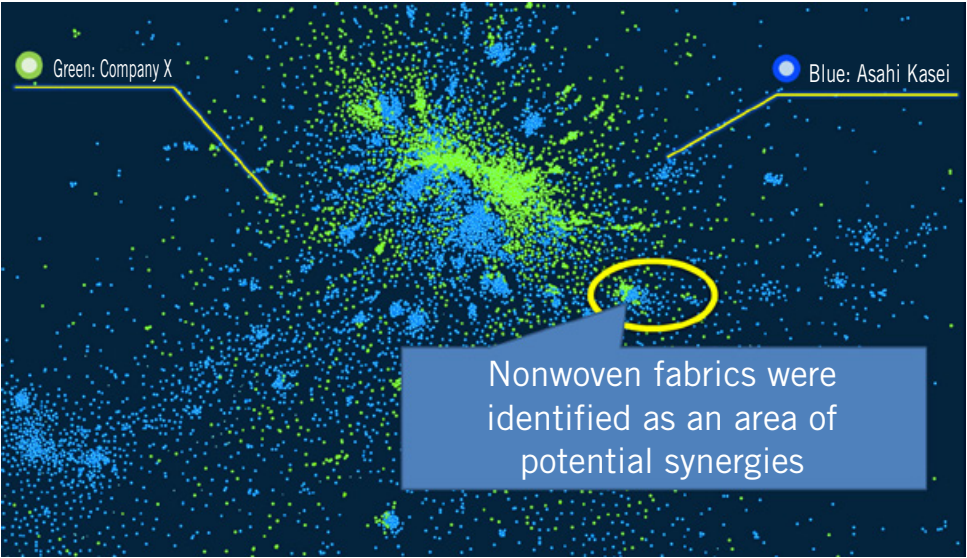
1 IP Landscaping (IPL) Contributing to Management Decisions

▶ Contributing to business portfolio optimization

Regarding growth investment and business portfolio transformation, which are key areas for Asahi Kasei, we use our **IPL¹** capable of taking an overview of businesses incorporating technology to analyze the business environment and provide recommendations to our management, thereby **contributing to management decisions (by strengthening the technological perspective)**. When making the decision to establish a joint venture in the spunbond nonwovens business, we were able to objectively demonstrate through various analyses of IP information that there were technological synergies between the two companies. We also conducted a simulation of the advantages of the joint venture over its competitors. Through this approach, we made a comprehensive strategic decision and achieved structural transformation of the spunbond nonwovens business.

▶ Example of a patent overview of the spunbond nonwovens business

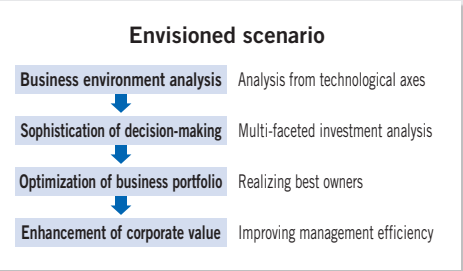
The figure on the right is an overview of the patents owned by Asahi Kasei and Company X using a text-mining method². Each dot represents one patent, and the distance between the dots represents the level of similarity of the patents. Areas in which dots are concentrated correspond to technology sectors businesses with a high degree of similarity. In this case, the patents of the two companies formed an integrated set of patents in the technology sector related to nonwovens and by examining in detail the patents in the said sector, we were able to clarify synergies for the two companies in the area of nonwovens.



² Created by Asahi Kasei using “VALUENEX Radar” (a tool provided by VALUENEX Japan Inc.)

Characteristics of the activities of the Intellectual Property Intelligence Department

In IPL, we take an objective overview of technological information and combine it with other general information to analyze the business environment. The results of the business environment analysis performed through IPL are provided to top management and the persons responsible for business operations to expand their technical perspectives when formulating management and business strategies, thereby contributing to more sophisticated decision-making. For example, in reviewing our business portfolio, by identifying the core technologies possessed by each company through IPL, we identify technological synergies that could not be identified with general information alone and contribute to improving corporate value by identifying best owners.



¹ Definition of IPL

When formulating management strategies or business strategies, 1) perform an analysis incorporating IP information into management and business information and 2) share the results (an overview of the current situation and future prospects, etc.) with management and those responsible for the business [definition by the Japan Patent Office].

Example

2

Material

PIMEL Business

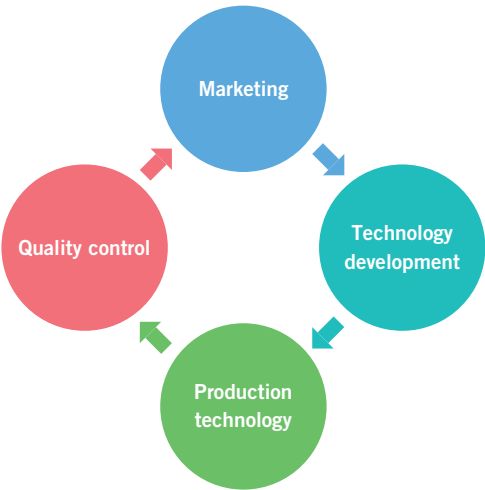
▶ Intangible assets supporting the PIMEL Business

PIMEL™ is a **photosensitive polyimide material that is used worldwide for semiconductor applications** such as buffer coatings, passivation layers for bumping, and dielectric layers for redistribution. PIMEL™ is also being increasingly adopted in leading-edge semiconductor packages that require multi-layer formation.

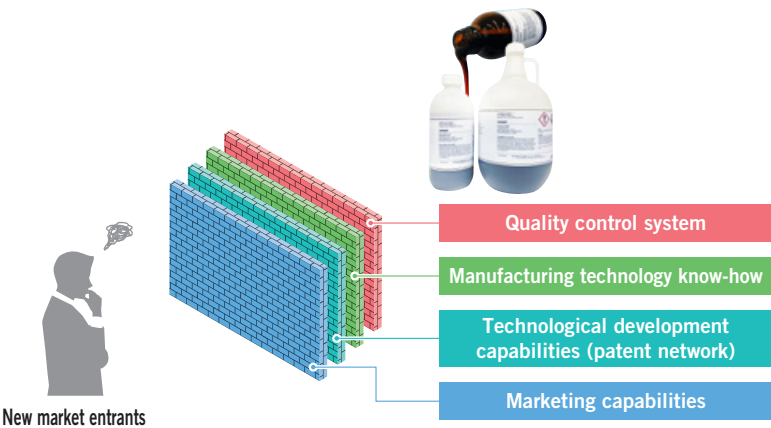
In the PIMEL business, we are enjoying **growth through a virtuous cycle** that involves gauging our customers’ needs through marketing, developing products that meet their needs, and stably supplying products of the required quantity and quality, thereby allowing us to build relationships of trust with our customers and to further identify new customer needs. Our marketing capabilities (human

networks), technological development capabilities (patent network), manufacturing technology know-how, and quality control systems represent intangible assets that are difficult for competitors to imitate, forming a **strong barrier to entry for competition** and contributing to growth in the PIMEL business.

These comprehensive strengths of our intangible assets related to the PIMEL business have grown to be able to respond to the demands of major semiconductors manufacturers and have become the source of growth of the PIMEL business. By building a virtuous cycle in the PIMEL business with our customers, we will further strengthen its competitiveness (barrier to entry).



Virtuous cycle in the PIMEL business



Quadruple barrier to entry through intangible assets

Building relationships of trust with customers

In December 2020, Asahi Kasei was selected as Outstanding Supplier, which is independently selected and awarded by TSMC. This is a very prestigious prize that is only awarded to tens of companies from the hundreds with which TSMC does business, demonstrating the high level of trust that TSMC has for our company. We see the award as a recognition of the performance and quality of our products, as well as our ability to provide a stable supply.



Material Sector:

IP Activities Contributing to the PIMEL Business

▶ IP activities supporting the PIMEL business

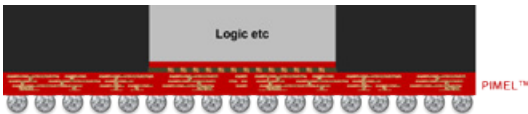
In our PIMEL business, products are created through a cycle of “product development by our company” and “product evaluations by our customers” As such, close coordination with our customers is essential, and we are further accelerating our development speed in line with our customers’ demands. At Corporate IP, the inventions produced by this rapid development process are supported by a similarly rapid patent application process.

PIMEL™ is supplied to our customers as a liquid product and becomes part of customers’ final products in its cured state. Therefore, we implement a multi-faceted IP strategy that discourages entry of competitors by securing IP rights over the liquid PIMEL™ supplied to our customers and the cured PIMEL™ in the customer’s products.

PIMEL™ at the time supplied to customers (liquid state)



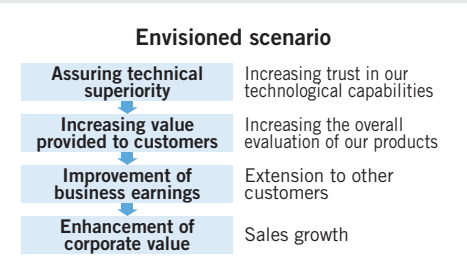
PIMEL™ in customer products (cured substances)



Protecting our IP rights both at the time supplied to customers and in customer products

Characteristics of IP activities in the Material sector

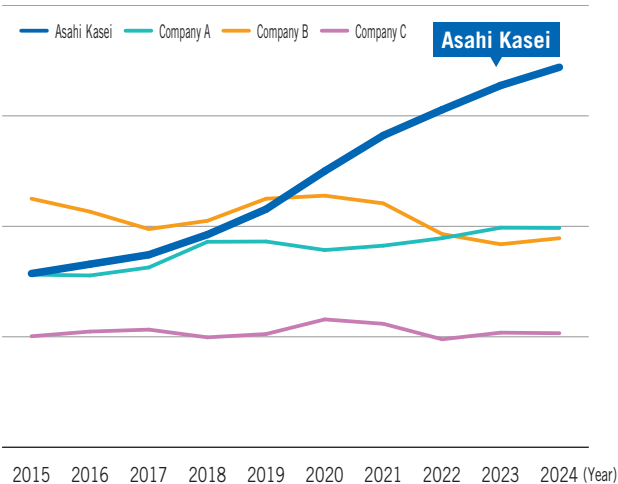
Securing our technological superiority using our IP and intangible assets helps us earn the trust of our customers in our technological capabilities. The evaluation and adoption of our products by key customers leads to increased trust in our products and technological capabilities, which in turn leads to increased sales to other customers, thereby significantly increasing business profits. Winning the trust of our customers also leads to our early identification of the next set of customer needs, and by responding to these needs, we build sustainable relationships and further improve our corporate value.



▶ Growth in patent score (TR) for PIMEL™

As PIMEL™ is a product that responds to cutting-edge customer needs, the inventions deriving from it are composed of cutting-edge technologies. The continued growth of the patent score (TR)*, which represents the technological value of PIMEL™, is the result of our **cutting-edge technological capabilities in the industry in recent years and of the steady acquisition of patent rights for inventions using those capabilities**, demonstrating our high level of technological competitiveness. Furthermore, patent inventions related to PIMEL™ have been highly valued, and **Asahi Kasei has been awarded the 2024 National Commendation for Invention “METI Minister’s Award”**

Patent score (TR) trend



Note: Calculated by Asahi Kasei using PatentSight®
PatentSight® is a registered trademark of PatentSight GmbH

* Patent score (TR: Technology Relevance)

Patents are reviewed by a patent office examiner, and where they demonstrate novelty and inventiveness, patent rights are granted. As such, inventions applied earlier are often quoted (cited) as a basis for rejecting the novelty and inventiveness of others’ patent application. Therefore, **a patent with a higher number of citations is assigned a higher patent score as being more advanced.**

Example

3

Homes

Homes Business

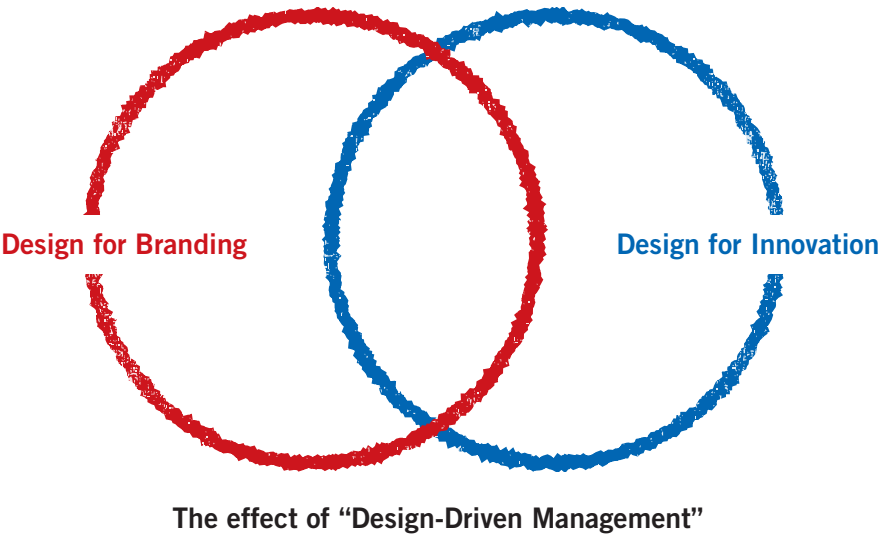
▶ Importance of design strategy

Background

Home design plays many roles in our brand strategy, including forming our brand image, appealing to our target market, establishing competitive superiority, increasing customer satisfaction, and living in harmony with the natural environment.

In terms of design-related policies, in 2018, METI and the Japanese Patent Office began to promote management methods making use of design as “Design-Driven Management.” Additionally, 2020 saw the first significant amendments to Japan’s industrial design system in 130 years, as the scope of its protection was expanded to include regular buildings and interiors.

It can be said that these changes have led to the increased importance of design strategies that incorporate the use of IP rights in the Homes sector.



Note: Created by Asahi Kasei based on METI’s “Design-Driven Management” declaration

▶ Improving business activities through design strategy

Business activities

Asahi Kasei Homes’ Hebel Haus™ unit homes and Hebel Maison™ apartment buildings are characterized by their universal exterior design that integrates the “functional beauty” represented in their durable, fire-resistant, earthquake-resistant construction using steel framing and AAC panels and the “material beauty” and “formative beauty” of their noiseless design. This design represents an important message to our customers.

In the Hebel Haus 50th anniversary commemoration model RATIUS RD™, the building itself expresses functional beauty through exposed cube-shaped design elements made of solid AAC panels, as well as a dynamic structural appearance of heavy steel. The cube-shaped design elements are also featured in the exterior construction, realizing a total design with sense of luxury. Although panels with standard dimensions are used for the interior, by carefully choosing the pattern in which the panels are arranged, we propose an interior space design that is environmental-friendly, natural, and lasting no matter the era or current design trend.

Asahi Kasei Homes has been selected as number one for nine consecutive years in the “Oricon Customer Satisfaction Survey” in the category of steel-frame order-built manufactured homes. Analyzing the survey of customers who purchased our homes, customers who gave a high evaluation of the design were found to have a high overall degree of satisfaction, which indicates that our excellence in design is helping to improve business activities.



RATIUS | RD™ building and exterior construction



RATIUS | RD™ interior

Homes

IP Activities Supporting Our Home Design Strategy

► IP strategy supporting our design strategy

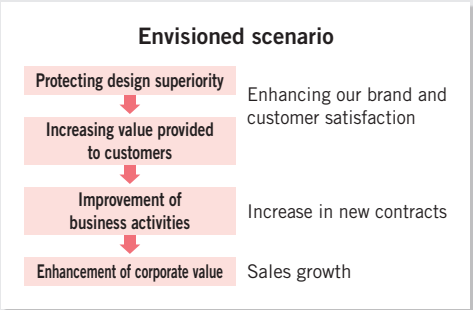
IP activities

As noted, Asahi Kasei Homes’ design strategy contributes to improving our business activities. To safeguard our unique design superiority that connects to enhancing the Hebel Haus™ unit homes and Hebel Maison™ apartment buildings brands and in turn customer satisfaction, we work to acquire and use building design rights (homes, residential complexes, and low-rise apartment buildings). As a result of these activities, we hold a number of building design rights that is top class in the construction industry. We establish a modeling method for each of our building products in advance, which enables the reproduction of designs and product identification in individual designs for customers and in the design of nationwide exhibition sites, and supports the design strategy by protecting this method as a design right.

In addition to building design rights, we hold design rights for our original AAC panel design, the total design of the building and exterior structure, and the interior design, providing us broad protection for our unique design image. Furthermore, through the use of the partial design system¹ and the related design system², we protect design variations, and by mixing patent rights focused on the functional elements of our design, we are building a strategic IP network.

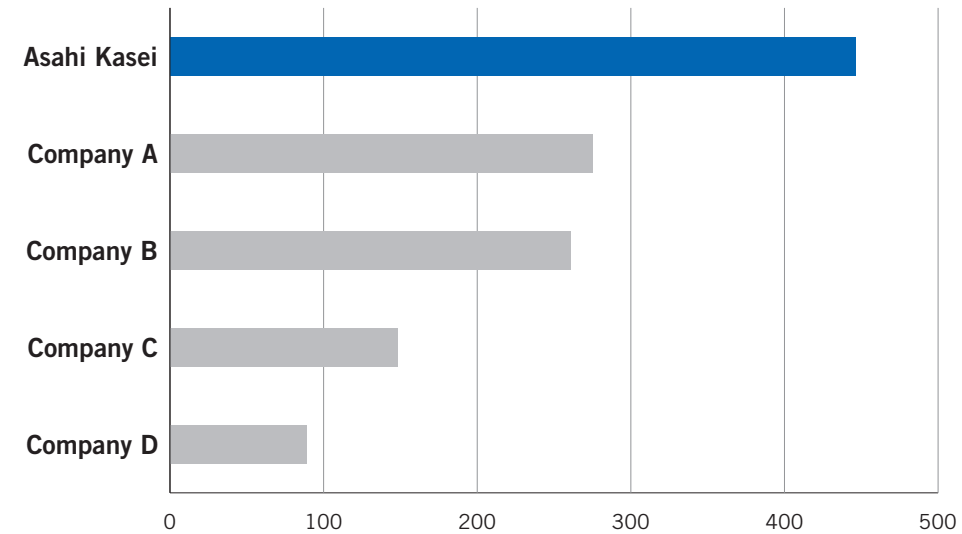
Characteristics of IP activities in the Homes sector

In the Homes sector, customer satisfaction is an important factor for business activities. Analyzing the results of survey of customers who purchased our homes with a focus on technical elements, customers who gave a high evaluation of the design were found to have a high overall degree of satisfaction, which indicates that our excellence in design is helping to improve business activities. Through our IP strategy including design rights to protect our designs, we provide unique value to our customers, contributing to improved corporate value.



► Results in acquiring strategic design rights related to buildings

Number of Design Rights Owned (Buildings)



Design rights granted with design classifications L3-21 and L3-2000 whose rights are still in force (as of July 2024)

¹ Partial design system

The partial design system has been established, where part of the design of a product is distinctive, to protect as a design right a design that incorporates the distinctive ‘part’ but differs significantly in the overall design.

² Related design system

In the design creation process, where many variations are created from a single concept design, the related design system was established to collectively protect the design rights in all the variations.

Example

4 Health Care Bioprocess Business

► Establishment of the Bioprocess business

In the 1980s, with increasing demand for safety against viruses in plasma-derived therapies, we initiated the development of technologies to remove extremely small viruses of tens of nanometers through membrane separation. We completed the filter by combining our phase separation technology with our hollow fiber membrane manufacturing technology developed for artificial kidneys. Furthermore, we independently developed an “integrity test” as a method of testing the virus removal performance of the filter, and developed the Planova™ virus removal filter (VF), which has all the necessary technology required for virus removal from pharmaceuticals, and succeeded in pioneering the virus removal filter market. VF has now become one of the key technologies for virus removal in the production of biological preparations (plasma-derived therapies and biopharmaceuticals).



With its customer base and brand developed in the filter business as its strengths, in 2009 the Bioprocess Division entered the equipment business, and in recent years, it entered the CRO business and CDMO business, now operating four businesses. By providing not only filters and equipment (goods) but also services for processes (services) that form the core of customers’ product realization, such as biosafety testing and process development, we aim to be a premium partner for pharmaceutical companies, helping to improve the safety and productivity of pharmaceutical preparations.

The four businesses making up the Bioprocess business

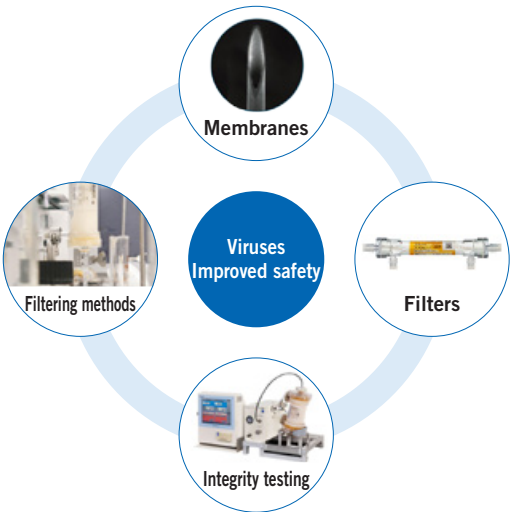


► Value provided to customers by our VF business

As the filter businesses of the Bioprocess business, what the VF business provides is increased virus safety in the purification process. To achieve this, of course, we need membranes that can both capture viruses and permeate protein preparations, and we have in place several types of membranes of different materials and structures that can be applied to a wide range of biological preparations. We then supply our customers with filters as products in which the membranes are packed in containers of different sizes, structures, etc., to suit different customer conditions of use. In addition to membranes and filters, the appropriate filtration methods are necessary to filter drug solutions with no virus leakage. In addition to carrying out filtration tests on various filtration targets and conditions when developing each product, we provide technical support at our customers’ locations to help them achieve the optimization of their manufacturing process. For each of our products, we have also independently developed and verified integrity test to check the health of the filter after filtration, and we provide this together with the criteria for judgement.

In this way, it is only when all of the membrane, filter, filtration method and integrity test are in place that it is possible to achieve the provision of customer value, and it is not possible to enter the market by imitating just one of these four elements. As a pioneer in VF, we provide not only innovative and reliable membranes and filters, but also solutions to our customers’ manufacturing processes through meticulous technical support, contributing to manufacturing safe and effective pharmaceuticals that can be used by patients with peace of mind.

The four elements supporting our virus removal filter business



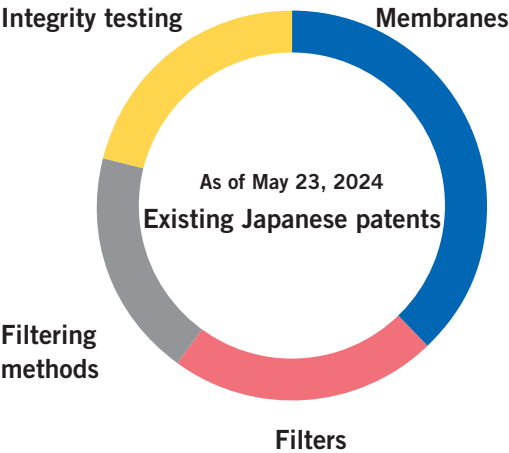
Health Care

Contributing to the VF Business through IP Activities

▶ Contributing to the VF business

Please see the pie chart where our patents related to the VF business are classified into the above-mentioned four categories with the size of the segments corresponding to the number for each category. We have been able to build a well-balanced patent portfolio, with a focus on membranes as the core technology, filter structures that lead to usability, user filtration methods and integrity testing methods, respectively, according to the actual business structure. This creates an environment where customers can use our VF with ease and ensures Asahi Kasei's technological superiority.

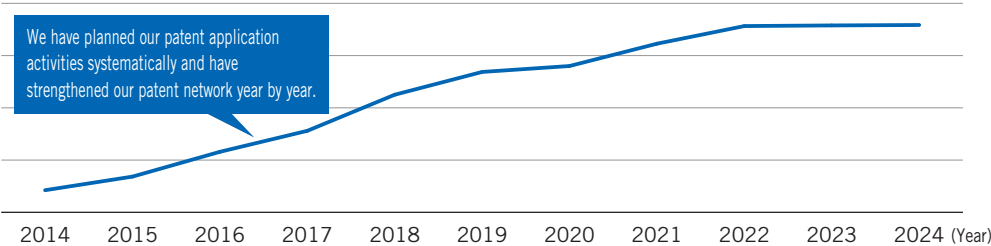
In this way, by acquiring rights for both product inventions and service inventions¹ in our VF business, we ensure multi-faceted protection for the technological value we provide and strengthen the barrier to entry for competitors.



▶ Contributing to sustainable growth

In the Bioprocess Division, we have built a system to systematically plan patent application activities and to ensure that patent applications are filed without fail. Moreover, each year we strengthen our patent network to support our VF business, which has strengths in overseas markets, by re-examining the patentability of foreign applications before filing them and ensuring that they are granted rights in each country. The results of these efforts are reflected in the patent score (PAI) associated with the business. Corporate IP will continue to contribute to the sustainable growth of the VF business by implementing protection of our strategic core technologies and multifaceted protection combining product invention and service invention.

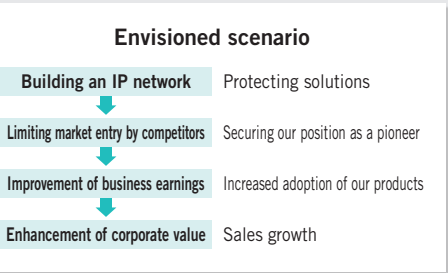
Trend in our patent score (PAI) for patents associated with our VF business²



² The chart on patents related to the VF business was created by Asahi Kasei using PatentSight®
Note: Patent score (PAI: Patent Asset Index)

Characteristics of IP activities in the Health Care sector

In the Health Care sector, research and development of pharmaceuticals and medical devices is controlled under strict regulations, and the technical elements of each player are made public through certification procedures by public authorities and other bodies. As such, we set up IP strategies that allow us to utilize regulations for the growth of our business, and we file patent applications strategically before the technology is publicly available, thereby contributing to business growth and business continuity. In this way, IP rights are strongly linked to business competitiveness in the Health Care sector, and therefore protection of technology through patents has become an important factor in ensuring market superiority.



¹ Product invention and service invention

In patent law, protected inventions are defined as “the creation of technical ideas,” and we can place the creative work protected by patents into the two categories of products and services. Because product inventions and service inventions have different scope of rights, they have different situation of use.

Feature

Using Intangible Assets to Build New Business Creation Models (TBC)

► New initiatives aimed at building businesses through co-creation

Amid rapidly accelerating technological innovation and changes in the business environment, to continue to respond to diversifying social issues and customer needs, we must constantly create new value. To do so, it is essential to create new businesses using not only our own resources (management resources), but also the resources (management resources) of other companies.

Furthermore, in the process of commercialization, it is also important to take the best owner's perspective - "Who can make this business grow the most?" - and it is necessary to build a co-creation strategy by constantly considering "What contribution can Asahi Kasei make to this business?"

Accordingly, Asahi Kasei has launched the **"Technology value Business Creation (TBC) Project,"** which aims to create businesses through co-creation that maximizes value for customers, co-creation partners and Asahi Kasei, in addition to business creation using our own resources.

In TBC, amongst other resources, intangible assets (patents, know-how, data, algorithms, etc.) consisting of the vast amount of technology accumulated by Asahi Kasei are combined with the resources of co-creation partners, thereby enabling the creation of new businesses through co-creation.

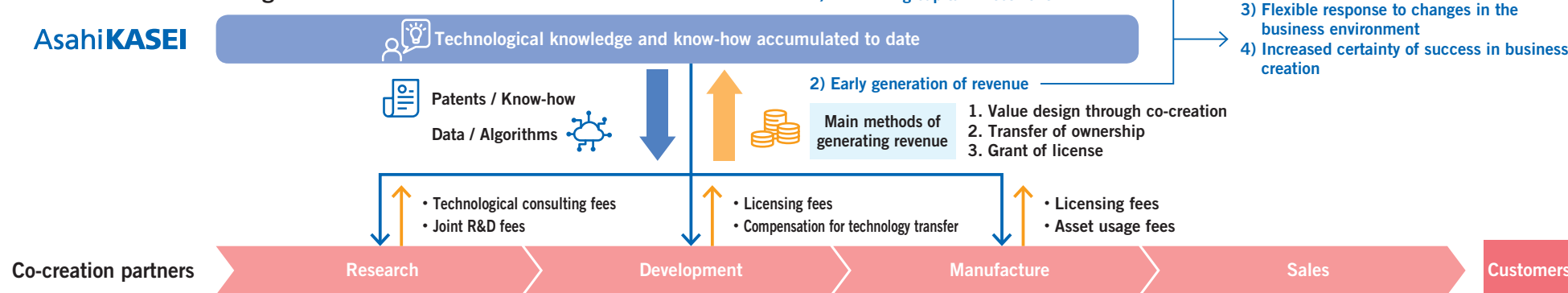
We believe that the advantages of business creation through co-creation compared to business creation using only our own resources are that **(i) the burden of capital investment can be minimized, (ii) revenue generation can be designed from the early stages of the business creation process and the time to the point of revenue is short, (iii) it is easier to respond flexibly to changes in the environment and (iv) the certainty of success in business creation can be increased.**

By building a diverse revenue model through different ways of using our intangible assets (value design through co-creation, transfer of ownership, and granting of licenses), we can achieve commercialization that balances speed and "asset light."

Business creation using our own resources



Business creation through co-creation



Feature

IP Activities Supporting TBC

TBC consists of three phases: 1) grasping the overall picture of the theme, 2) building co-creation strategy and IP strategy, and 3) forming an agreement with the counter party. First, 1) with an eye on building a co-creation strategy, we take an overview of the intangible assets owned by Asahi Kasei and other companies, their strengths and positioning around the subject, and grasp the overall picture.

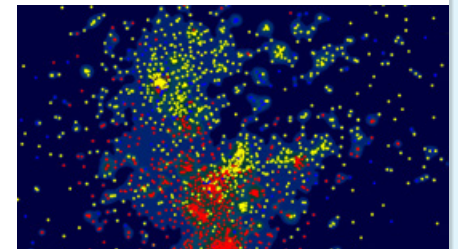
Next, 2) after searching for the most suitable co-creation partners and candidates for co-creation subject, we build a co-creation strategy while also building the IP strategy necessary for the realization of the co-creation strategy. Lastly, 3) through licensing negotiations and other processes between Asahi Kasei and the co-creation partner, an agreement we form in a way that maximizes the benefits for both companies, with the aim of creating a business with the co-creation partner.



Grasping the overall picture of the subject

1 Grasping the intangible assets related to the subject

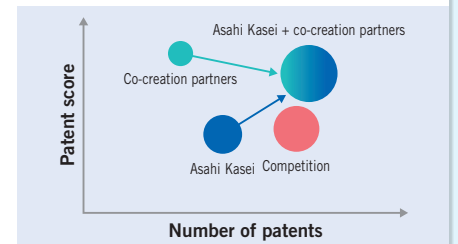
Intangible assets related to the subject of TBC are scrutinized and verbalized from the perspective of an IP expert, for example, as shown in the diagram on the right, to identify the technological trends of Asahi Kasei and other companies (e.g. envisioned competitors and envisioned partners). We grasp the overall picture by taking an overview of the strength and positioning of the intangible assets held by Asahi Kasei and other companies related to the subject incorporating the market information of the envisioned customers.



Building co-creation strategy Building IP strategy

2 Searching for co-creation partners and formulating IP strategy

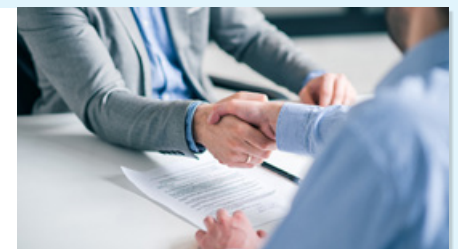
Partners are essential in business co-creation models that use intangible assets. By searching for and identifying potential partners for co-creation or licensing by using IPL that employs diverse analysis methods, we contribute to formulating our co-creation strategy. We also formulate and implement the necessary IP strategy to realize our co-creation strategy together with our partners.



Forming agreements with counterparties

3 Formulating and implementing negotiations and contract scenarios

After forming agreements that maximize profits for Asahi Kasei and our co-creation partners, we aim to carry out speedy, asset-light business creation.

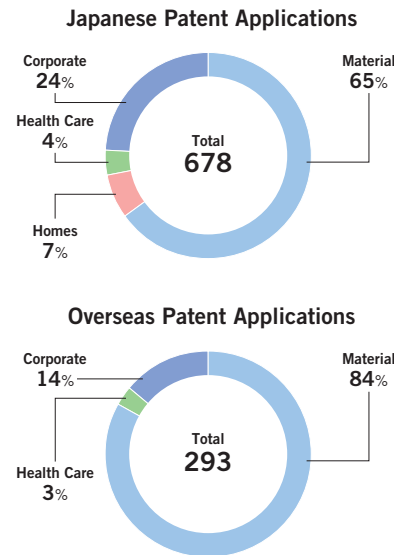


Number of Patent Applications/Number of Patent Rights Held and Practiced

Based on our IP strategy that aligns with our business strategy, we proactively promote building a strategic IP network centered on patents. Regarding the number of patents held, although there have been no significant changes in Japan, the number of overseas patents has increased along with the growth in our overseas businesses.

In terms of putting into practice the patents we hold, there is no significant difference between Japan and overseas, and including those scheduled to be so, approximately 65% of our patents are put into practice, contributing to securing the superiority of business. The remaining approximately 35% are mainly for technologies related to the implemented technologies or for the purpose of defending against other companies, but we plan to proactively use these patents through TBC and other means.

Number of Patent Applications (2023)

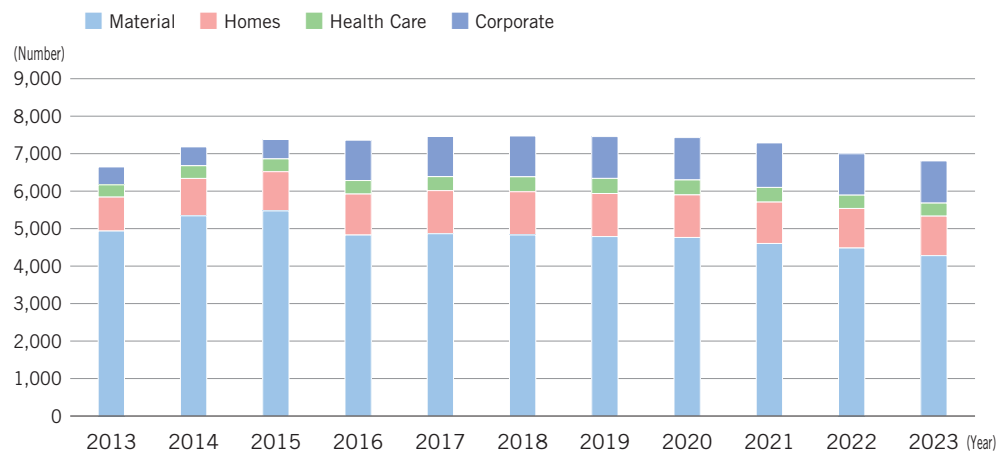


Practice status of patent rights in Japan and overseas

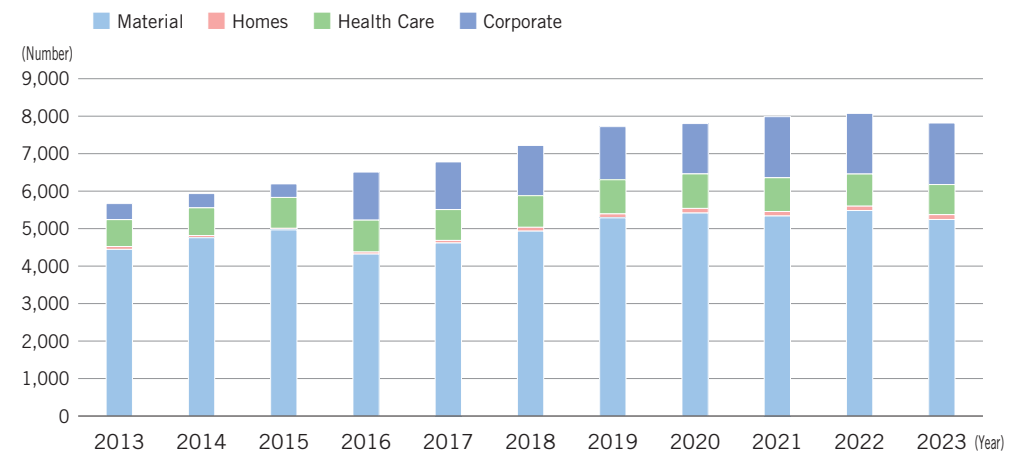
As of September 2024

		Material	Homes	Health Care	Corporate	Total
Japanese Patents	In practice (including licenses)	47%	38%	43%	30%	43%
	Scheduled to be in practice	15%	12%	9%	50%	20%
	Defensive & other	38%	50%	48%	20%	37%
Overseas Patents	In practice (including licenses)	43%	49%	39%	27%	40%
	Scheduled to be in practice	17%	39%	16%	59%	25%
	Defensive & other	40%	12%	45%	14%	35%

Number of Japanese Patent Rights



Number of Overseas Patent Rights



Major External Commendations

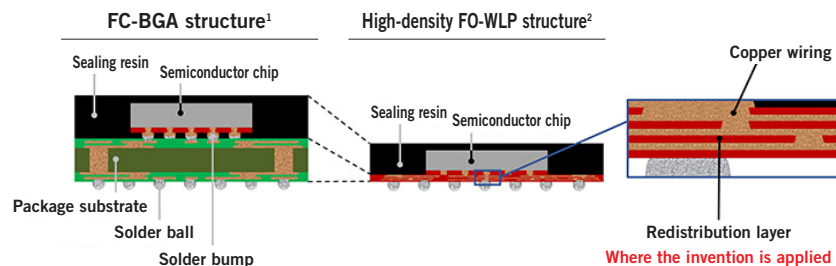
▶ Awarded the 2024 National Commendation for Invention “METI Minister’s Award”

Our invention of a dielectric composition that enables higher density in semiconductor packages, “Patent #5841373” (“the Invention”) was awarded the 2024 National Commendation for Invention “METI Minister’s Award” organized by the Japan Institute of Invention and Innovation.

By adding a specific purine derivative to a polyimide precursor composition, the inventors of the Invention found an insulating film that demonstrates strong adhesion even when cured at low temperatures as well as a high level of corrosion resistance. Furthermore, through a range of analysis, it was discovered that this purine derivative contributes to both adhesion and corrosion resistance through a different mechanism than the nitrogenated aromatic compound that was previously used.

The dielectric composition of the invention is used in cutting-edge smartphones as a material for semiconductor packaging throughout the world, and with its scope of application expanding, it has become a representative example of Japanese materials technology driving the evolution of electronic devices. Another common issue in the electronic components field is adhesion between resin and copper. The Invention and the discovery of this mechanism are expected to contribute broadly to electronic materials development, which led to Asahi Kasei winning the award.

Note: The Invention is used as a part of PIMEL™



Transitioning from an FC-BGA structure to a high-density FO-WLP structure

¹ FC-BGA: Flip Chip-Ball Grid Array Package

² High-density FO-WLP: High-density Fan-Out Wafer Level Package

▶ Awarded the 2023 regional invention award “The Prize of the Chairman of Shizuoka Institute of Invention and Innovation”

Our invention related to micro-capsule-type curing agent for epoxy resin for use in semiconductor package adhesives, “Patent #6283568” (“the Invention”) was awarded the 2023 regional invention award “The Prize of the Chairman of Shizuoka Institute of Invention and Innovation” organized by the Japan Institute of Invention and Innovation.

The curing agent of the Invention has achieved improved permeability into microstructures by controlling the flowability of epoxy resin-based adhesives, while maintaining the characteristic balance between storage stability and reactivity, which are in a trade-off relationship. As a result, it has become an essential material as a latent curing agent for adhesives used in cutting-edge semiconductor packages installed in smartphones which are becoming miniaturized at an accelerated pace with the transition to 5G.

Note: The Invention is used as part of NOVACURE™



IP Elite

2023 Asia IP Elite Award

The use of intellectual property to achieve goals in the business was highly commended, focusing on case examples presented at the “IP Strategy Briefing Session” held in 2022.

- Established the specialized organization “Intellectual Property Intelligence Department”
- Accelerating co-creation through exclusive pharma licenses
- Energizing business communication through IPL



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