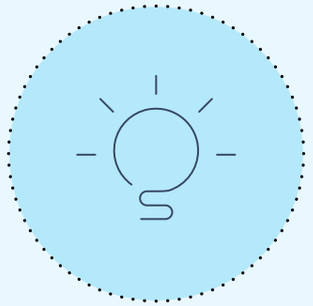
# Transformative Innovation

We strive to achieve sustainable lifestyles for consumers and solve intractable social issues by providing innovative products and services driven by essential research and technology innovation.



## Risks

- Increased disasters and loss of biodiversity due to global warming are affecting corporate activities
- Competition is increasing due to the entry of global companies and companies from other industries into the market
- Social issues and lifestyles diversify, and needs and value propositions are becoming more complex
- Insufficient capabilities to respond to stricter regulations and heightened environmental awareness lead to loss of business opportunities

## Opportunities

- Securing a competitive advantage through promoting technology innovation and value creation, and development of new markets and businesses that lead to medium- to long-term growth
- Provision of indispensable products and services through unique value propositions backed by scientific evidence and an understanding of the essence of consumer and customer issues
- Co-create with partners to solve difficult issues and achieve early social implementation

| Strategy | | Metrics | Targets | 2025 results | Initiatives |
|---|---|---|---|---|---|
| Overall | (1) Develop globally competitive core technologies and products | | | | |
| | (2) Achieve both customer value and sustainable value creation | | | | |
| | (3) Strengthen development based on speed as a competitive axis | | | | |
| | (4) Create new areas that drive future growth | | | | |
| Product development research | Improving QOL: Value proposals and product development that contribute to an enriched life | Cumulative number of proposed or realized products with a big positive impact on lifestyles (cumulative since 2019) | 10 or more 2030 | 8 | *Bioré The Body Totonoihada* (1) (2) |
| | Decarbonization: Product development that contributes to reducing $CO_2$ emissions (energy and water conservation, reducing usage and waste, etc.), prevention of air and water pollution, and use of environmentally friendly raw materials | | | | *THE ANSWER* (1) (2) |
| | | | | | *Cucute No-Scrubbing Foam Pack Spray* (1) (2) |
| | Development of safer and healthier products | | | | Room-temperature anti-rust cleaners (1) (2) (4) |
| | | | | | *Jergens Lotion Bursts* (1) (3) |
| Fundamental technology research | Decarbonization, zero waste, water conservation: Development of technologies and systems to build a recycling-oriented economic society | Cumulative number of proposed or realized businesses and systems with a big positive impact on lifestyles (cumulative since 2019) | 10 or more 2030 | 9 | Saccharification enzyme supply platform (1) (4) |
| | Technology development that solves social issues and creates high-value-added products and new businesses | | | | |

## Financial impact

- Increase in sales by developing technologies to solve social issues and proposing high-value-added products
- Increasing market share and improving operating margins by differentiating from existing products
- Increasing customer loyalty and LTV by delivering cutting-edge, indispensable value propositions through proprietary technologies

## Environmental and social impact

- Reduction of waste and carbon dioxide emissions
- Realization of a healthy and comfortable society by improving the quality of life
- Maximization of the impact of solving social issues through active communication of technology and expanded co-creation with external partners

* The numbers at the end of the metrics, targets, and initiatives indicate the strategy identifiers.

# Strategy

To reduce risks and create opportunities for Transformative Innovation, we are implementing strategies that are unique to Kao, are effective, and contribute to business growth and solving social issues.

## Social issues

For Kao to remain a sustainable and competitive entity, it is essential to accurately grasp evolving social issues. This will not only mitigate business risks for Kao but will also be an important starting point for identifying new business opportunities that will drive growth. Kao recognizes the following social issues related to this theme.

- Global warming: The impact on people's lives of the heat waves and disasters associated with climate change that continue to progress around the world
- Globalization and diversity: Growing interest in environmental and social issues associated with the globalization of people, goods and services, resources and capital, and information, as well as the diversification of lifestyles and values
- Technology innovation: Market entry by different industries and startups in the environmental technology field, and promotion of technology innovation through national strategies
- Regulations and rules: The formation of an international framework to deal with climate change, international regulations and standardization reflecting increased awareness of safety and security, and the competition to form rules in each country

## Risks and opportunities

Kao faces various risks in this business environment, which includes these social issues, but it is also identifying new business opportunities. Identifying these risks and opportunities is an important process in formulating corporate strategies and measures. The main risks and opportunities identified by Kao in this theme are as follows.

### Risks

- Disruption of production activities and surging raw material procurement costs due to an increase in severe natural disasters caused by global warming and the loss of biodiversity
- Decline in product competitiveness resulting from intensified global competition in product and technology development, which undermines capabilities in raw material procurement, technology development, cost competitiveness, and other areas; weakening and loss of conventional R&D competitiveness due to technological innovation and market entry by companies from other industries
- Needs and value propositions becoming more complex due to social issues and the diversification of lifestyles
- Loss of business opportunities due to increased compliance costs and a lack of relevant response capabilities

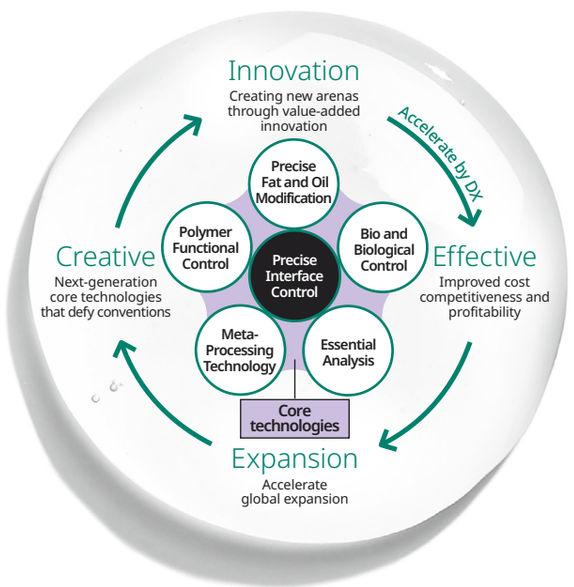
### Opportunities

- Creation of new markets and new businesses that lead to medium-to-long-term growth through securing proprietary exclusivity and competitive advantage with the promotion of technology innovation and value creation
- Provision of indispensable products and services to consumers and customers through unique value propositions backed by scientific evidence and an understanding of the essence, to address the diversification of lifestyles and values
- Promotion of cross-industry, industry-government-academia collaboration through open innovation to overcome intractable social issues and achieve the early implementation of solutions in society

## Strategy

We have formulated the following strategies to address the identified risks and opportunities.

R&D strategies are essential if Kao is to continue being a company that is essential to a sustainable world. Based on its unique core technologies cultivated over many years, Kao has established its *Global Sharp Top* business by linking those technologies across businesses and areas. Furthermore, understanding consumer and customer issues to define the true values that are wanted, and fusing this with technology innovation has enabled Kao to offer proposals for products and services that have proprietary exclusivity and competitive advantages. Intellectual property



strategies are also essential to achieve this. The broad application of these technologies and the linking of values is a distinctive strength of Kao's R&D that sets it apart from other companies. This strength is the source of its competitive edge in global markets.

### (1) Develop globally competitive core technologies and products

Kao continuously enhances its technology capabilities and scope of application by concentrating its resources on core technologies that are unique and have a competitive advantage. A key element to this is its precise interfacial control technology*, which is backed by extensive technology assets and is extremely difficult to replicate. By combining this with its other five core technologies and connecting them across businesses for application in products and services, Kao proposes solutions to social issues that are becoming increasingly diverse and complex, while maintaining a competitive edge in global markets.
Furthermore, we will unearth new approaches for difficult issues through Essential Research that delves deep into subjects and phenomena related to people and objects to reveal their mechanisms and create new values by combining them with technologies.

* Precise interfacial control technology: A Kao technology that precisely controls the properties of interfaces between elements, such as liquids and solids, liquids and gases, and solids and gases. Cleanliness is achieved by controlling various interfaces, including cleansing technologies that penetrate and break down oily residues on tableware surfaces, antifouling technologies that transform hydrophobic synthetic fibers to become more compatible with water for easier removal of oil-based stains, and application technologies that allow UV-blocking ingredients to cover the skin while providing effective protection and a pleasant user experience.

### (2) Achieve both customer value and sustainable value creation

We will realize both pioneering value creation from a customer perspective and sustainable value realization that contribute to a sustainable world by using Kao's innovations, without having to make trade-offs. To achieve this goal, we will create unique customer value backed by scientific evidence under Kao's Sustainable Product Development Policy through close collaboration between fundamental technology research and product development research. This enables us to fulfill our responsibility to society and provide the maximum benefit and quality to customers.

### (3) Strengthen development based on speed as a competitive axis

With our proprietary technologies as the starting point, we will swiftly proceed with global expansion and social implementation while actively applying open innovation and co-creation with our partners to achieve this. We will also improve the efficiency and speed of R&D activities and *Yoki-Monozukuri* through the application of digital technologies, and foster DX human resources within R&D to further strengthen development capacities.

### (4) Create new areas that drive future growth

We will anticipate changes in the world to create new technologies needed for the future, transform them into innovative customer value, and build new markets that will lead to medium- to long-term growth.

Related initiatives: P127 Application of core technology (1): *Bioré The Body Totonoihada*—Kao's proprietary cleansing technology of selective sebum wash while protecting the skin, P127 Application of core technology (2): *THE ANSWER*—formulated with high concentrations of hair-nourishing ingredients with lamellar structuring technology, P128 Application of core technology (3): *Cucute No-Scrubbing Foam Pack Spray*—saving water and time through foam cleansing, P128 Development of a room-temperature anti-rust cleaner that significantly reduces $CO_2$ emissions by collaborating with another company, P128 Development of Jergens Lotion Bursts through global internal collaboration, P129 Establishment of a saccharification enzyme supply platform to support growth in the bio-business

## Impact generated by implementing the strategies

We believe that the aforementioned strategies will have the following financial, environmental, and social impacts.

### Financial impact

- Increasing sales through development of technologies that solve social issues and proposing high value-added products
- Increasing market share and improving operating margins through differentiation from existing products
- Increasing customer loyalty and LTV (Lifetime Value) by delivering cutting-edge, indispensable value proposition through proprietary technologies

### Environmental and social impact

- Reduction of waste and carbon dioxide emissions
- Realizing of a healthy and comfortable society by improving the quality of life
- Maximizing the impact of solutions to social issues through active communication of technology capabilities and expansion of co-creation with external partners (creation of synergies that cannot be achieved by ourselves)

## Strategic resilience

In response to the risks of global warming, natural resource shortages, and intensifying global competition, Kao ensures the stability of its business by promoting technology innovation to effectively utilize and secure natural resources and provide products that deliver high value to consumers and customers. In addition, we are modifying our R&D strategy as needed while collecting information through industry-government-academia collaboration in response to stricter regulations and risks that are difficult to predict over the medium to long term. These measures are designed to maintain business continuity while also ensuring that we have the resilience to adapt quickly to changes in society and the market.

## Metrics and targets

To improve the effectiveness of our strategies, we have established performance metrics related to risks and opportunities, and we regularly monitor our progress. We have set targets for the metrics related to particularly important risks and opportunities, and we are steadily promoting initiatives through improvements by using the PDCA cycle to check the status of achievement of these targets.

### Targets and progress

| Strategy | Metrics | Results | | | | | Mid- to long-term targets | |
|---|---|---|---|---|---|---|---|---|
| | | 2021 | 2022 | 2023 | 2024 | 2025 | Target value | Year |
| (1) (2) (3) | Cumulative number of proposed or realized products with a big positive impact on lifestyles (cumulative since 2019) | 4 cases | 5 cases | 6 cases | 7 cases | 8 cases | 10 or more | 2030 |
| (1) (2) (3) | Cumulative number of proposed or realized businesses and systems with a big positive impact on lifestyles (cumulative since 2019) | 3 cases | 5 cases | 6 cases | 7 cases | 9 cases | 10 or more | 2030 |

In the product category, the hair care shampoo and treatment *THE ANSWER* received the Trend Category Award at the 2025 Nikkei Excellent Products and Services Awards. In the business and systems category, the room-temperature anti-rust cleaners earned the Minister of the Environment Award at the 52nd Environmental Awards (along with AISIN CORPORATION), co-hosted by the National Institute for Environmental Studies and NIKKAN KOGYO SHIMBUN, and supported by the Ministry of Environment. Furthermore, Kao's technologies for concrete surface aesthetic enhancement received the Environmental Technology Prize at the 57th JCIA Technology Award held by the Japan Chemical Industry Association.

These awards reflect the high recognition that Kao's efforts have earned as contributions to people's lives and society. We will continue these activities going forward.

## Governance

In terms of governance for Transformative Innovation, the R&D is the main division under the supervision of the Board of Directors, and the head of the R&D Strategy is responsible for the strategy. The strategy is formulated, and progress is checked through reports to the management and business management levels.

Specifically, the progress of research themes and the degree of achievement of KPIs are reported to the corporate, business, and research management at the annual research and technology meeting and research management meeting. In addition, at the ESG Promotion Meeting, the policies, strategy implementation, and progress of R&D activities are reported to the management and business management levels.

P62 Our ESG Vision and Strategy > Governance

## Risk and opportunity management

### Policies

To implement its Transformative Innovation, Kao has established the following policies as guidelines for its daily operations and decision-making. For details, please see the website.

- R&D Philosophy
  https://www.kao.com/global/en/innovation/research-development/
- Kao Sustainable Product Development Policy
  https://www.kao.com/global/en/sustainability/klp/policy/product-development-policy/

### Management process

The status of our initiatives to address the risks and opportunities associated with Transformative Innovation is managed through the following processes: planning, implementation, evaluation of results, and corrective action, and we are working to make steady improvements.

**P (Planning)**
Formulate an annual R&D strategy, and share and confirm it with management and business management

**D (Implementation)**
Please see our initiatives (P127-129).

**C (Evaluation of results)**
Share R&D activities in monthly and semi-annual reports with the research management team, and check the research theme progress, personnel assignments, budget performance, etc.

**A (Corrective action)**
Share and confirm the results of annual research with management and business management.

## Initiatives

Kao is engaged in a variety of initiatives aimed at Transformative Innovation. These initiatives are based on the aforementioned strategies and are being promoted in collaboration with one another to achieve our targets. Here we will introduce some of the important initiatives from among the many we are engaged in.

| Strategy | | | Initiatives | |
|---|---|---|---|---|
| Overall | (1) Develop globally competitive core technologies and products<br>(2) Achieve both customer value and sustainable value creation<br>(3) Strengthen development based on speed as a competitive axis<br>(4) Create new areas that drive future growth | Product Development Research + Fundamental Technology Research | *Bioré The Body Totonoihada* | Room-temperature Anti-rust cleaners |
| | | | *THE ANSWER* | *Jergens Lotion Bursts* |
| | | | *Cucute No-Scrubbing Foam Pack Spray* | Saccharification enzyme supply platform |

### Application of core technology (1): *Bioré The Body Totonoihada* —Kao's proprietary cleansing technology of selective sebum wash while protecting the skin

Region: Japan
Corresponding strategies: (1) (2)

Ever since it was founded, Kao has continued to accumulate cleansing technologies for a wide range of surfaces, including the face, body, clothing, and tableware. The technologies evolved to thoroughly remove unwanted elements while protecting the skin and minimizing strain caused by over-washing.

*Bioré The Body Totonoihada* is a skin cleanser that contains Kao's proprietary Sodium C16 Olefin Sulfonate derived from natural sources. It preserves the sebum necessary for skin moisture and removes unsaturated fatty acids that have a negative impact on the skin barrier functions, while providing a luster created by a water veil when the body wash is rinsed off.

The environment surrounding our skin is becoming increasingly harsh with global warming and the rise in extremely hot days. This product addresses a variety of skin conditions throughout the body, such as having sticky skin on one's back while experiencing dryness on the shins. In addition to dermatological expertise, this product makes use of the selective cleansing technologies of Kao's core precise interfacial control technology.

### Application of core technology (2): *THE ANSWER*—formulated with high concentrations of hair-nourishing ingredients with lamellar structuring technology

Region: Japan
Corresponding strategies: (1) (2)

Hair that has been damaged by repeated use of hair straighteners and coloring tends to lose lipids and proteins during washing. These components need to be replenished because they are essential for managing beauty hair and enhancing its shine. However, ingredients such as lipids do not dissolve easily in water and may cause formulas to separate and foam poorly, so incorporating them

sufficiently into shampoos has conventionally been challenging.

For this reason, we came up with the idea of a lamellar structure, in which water and oil layers alternate and overlap. This allowed for the retention of large quantities of lipids and other components of the five essential hair-nourishing ingredients, leading to the development of *THE ANSWER*, a shampoo that replenishes lipids during washing while retaining the fundamental properties of a shampoo. This lamellar structuring technology is one application of Kao's precise interfacial control technology, which is also used in products such as beauty serums.

In a market with various premium shampoos, the product's reliable user experience was held in high regard, especially among beauty-conscious consumers who had not been able to find a shampoo that satisfied them, and received the Trend Category Award at the 2025 Nikkei Excellent Products and Services Awards.

### Application of core technology (3): *Cucute No-Scrubbing Foam Pack Spray*—saving water and time through foam cleansing

Region: Japan
Corresponding strategies: (1) (2)

Conventionally, foam was thought to have pleasant sensory qualities but little effect on cleaning. However, some types of fine, dense foam can absorb oil in the interface created when compressed foam attempts to revert to their original spherical shape. This cleansing mechanism uses the interfacial forces between air and liquid to remove grime without applying force.

By combining this foam cleansing with the functions of enzymes to decompose complex grime that includes oils and sugars, we developed *Cucute No-Scrubbing Foam Pack Spray*—a dishwashing detergent that cleans by simply spraying foam over tableware that has been piled up in the sink and rinsing, without the need for scrubbing.

As lifestyles become more diverse, scrubbing dishes is still a chore that many consumers find tedious. This product shortens dishwashing time by approximately 30% while also reducing the amount of water used for rinsing by 20%. Using this product does not only create free time, but also contributes towards improving quality of life and water conservation.

### Development of a room-temperature anti-rust cleaner that significantly reduces $CO_2$ emissions by collaborating with another company

Region: Japan
Corresponding strategies: (1) (2) (4)

The manufacturing process for automotive parts calls for high levels of energy consumption for heated cleaning agents and hot-air drying, which led to the issue of significant $CO_2$ emissions.

Through joint development with AISIN CORPORATION, Kao leveraged its precise interfacial control technology to accelerate the penetration of cleaning ingredients to enhance cleansing power and reduce drying times by controlling surface wettability. This led to the development of an anti-rust cleaner that works at room temperature and provides rust prevention by forming a surface film.

In addition to helping the automotive industry achieve energy conservation and reduce $CO_2$ emissions, this technology has also simplified rust-prevention processes, thus significantly reducing environmental impact at the *Genba*.

In recognition of these achievements, the technology received the Minister of the Environment Award at the 52nd Environmental Awards (co-hosted by the National Institute for Environmental Studies and NIKKAN KOGYO SHIMBUN, and supported by the Ministry of Environment).

Kao has always been committed to developing unique cleansing technologies for industrial fields. Going forward, we will continue to develop cleansing technologies for both consumers and industrial fields to promote the *Global Sharp Top* strategy. The use of Kao products will contribute towards improving the environments of both consumers and workers, along with the realization of a decarbonized society.

### Development of *Jergens Lotion Bursts* through global internal collaboration

Region: North America
Corresponding strategies: (1) (3)

In 2025, we launched the solid type lotion *Jergens Lotion Bursts* in the Americas, to offer consumers an enjoyable, completely new experience that cannot be achieved with a conventional lotion format. This product is a lotion that takes on a solid form using agar derived

from seaweed. It locks in moisturizing ingredients and fragrance and can be molded into fun shapes, such as stars and hearts. When rubbed on the skin directly with one's palm or similar method, the fragrance is released while thoroughly moisturizing the skin.

Commercialization was made possible by combining the processing technologies for solidifying liquid formulas developed by research laboratories in Japan with moisturizing formulas and formulation technologies tailored to local consumers developed by research laboratories in the Americas. Researchers from both countries repeated experiments to create a formulation that holds its shape, can be easily crushed, applies smoothly, releases fragrance effectively.

This product has been received well by consumers as an unprecedented and unique skincare experience. It does not only cater to new lifestyle scenes by being easy to carry and share with friends, but everything about it is new, from the color and shape of the solid in transparent containers to the sensory experience when using the product.

## Establishment of a saccharification enzyme supply platform to support growth in the bio-business

Region: Japan

Corresponding strategies: (1) (4)

Kao is advancing collaborations with various universities and external research institutions to acquire and enhance its technologies. One of Kao's core technologies, biotechnology, has been cultivated through the development of enzymes for detergents. We are focusing on this as a manufacturing foundation using biomass raw materials as a replacement for petrochemical raw materials.

To date, through projects commissioned by the New Energy and Industrial Technology Development Organization (NEDO), Kao has been conducting process engineering development for saccharification enzymes that convert cellulosic biomass into sugars, which is essential for bioethanol production and does not compete with food sources. Kao's proposal to establish a stable domestic supply platform for these saccharification enzymes has been selected for NEDO's Bio Manufacturing Revolution Promotion Project.

Within this project, Kao will work on developing diverse saccharification enzymes according to biomass types, along with establishing effective process engineering for enzymes, including microbial improvement. Through corporate collaboration, we will aim to create a saccharification enzyme supply platform that supports the production of bioethanol, sustainable aviation fuel (SAF), and bio-based products.

Employees' opinions

## Reinventing body lotion through collaboration and challenges with global members

**Kensuke Aoyagi**
Processing Development Research,
Kao Corporation

*Jergens* Body Lotion has been a beloved brand in the United States for more than 125 years. Looking ahead, we explored how this long-established brand, trusted by generations, can continue to serve even more consumers by engaging local researchers and brand team members in ongoing, candid conversations. To bring a wide range of ideas to life, we combined the diverse processing technologies developed in Japan with moisturizing technologies that have long been cherished locally, thereby taking on the challenge of reinventing body lotion as a unified global team. We aim to create body lotions that are a pleasure to look at, use, and share—products that spark excitement from the moment of use and continue to deliver after application, while adding a touch of color and joy to everyday life.

Making Thoughtful Choices for Society
Sustainable Lifestyle Promotion
Purpose Driven Brands
> Transformative Innovation
Responsibly Sourced Raw Materials
Making the World Healthier & Cleaner
Walking the Right Path