

Our Challenges

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Innovations Starting from Networking

Coming together across the Group as “One Kuraray,” we continue to take on the challenge of creating innovation by connecting people with people, and technologies with technologies, both within and outside the Company.

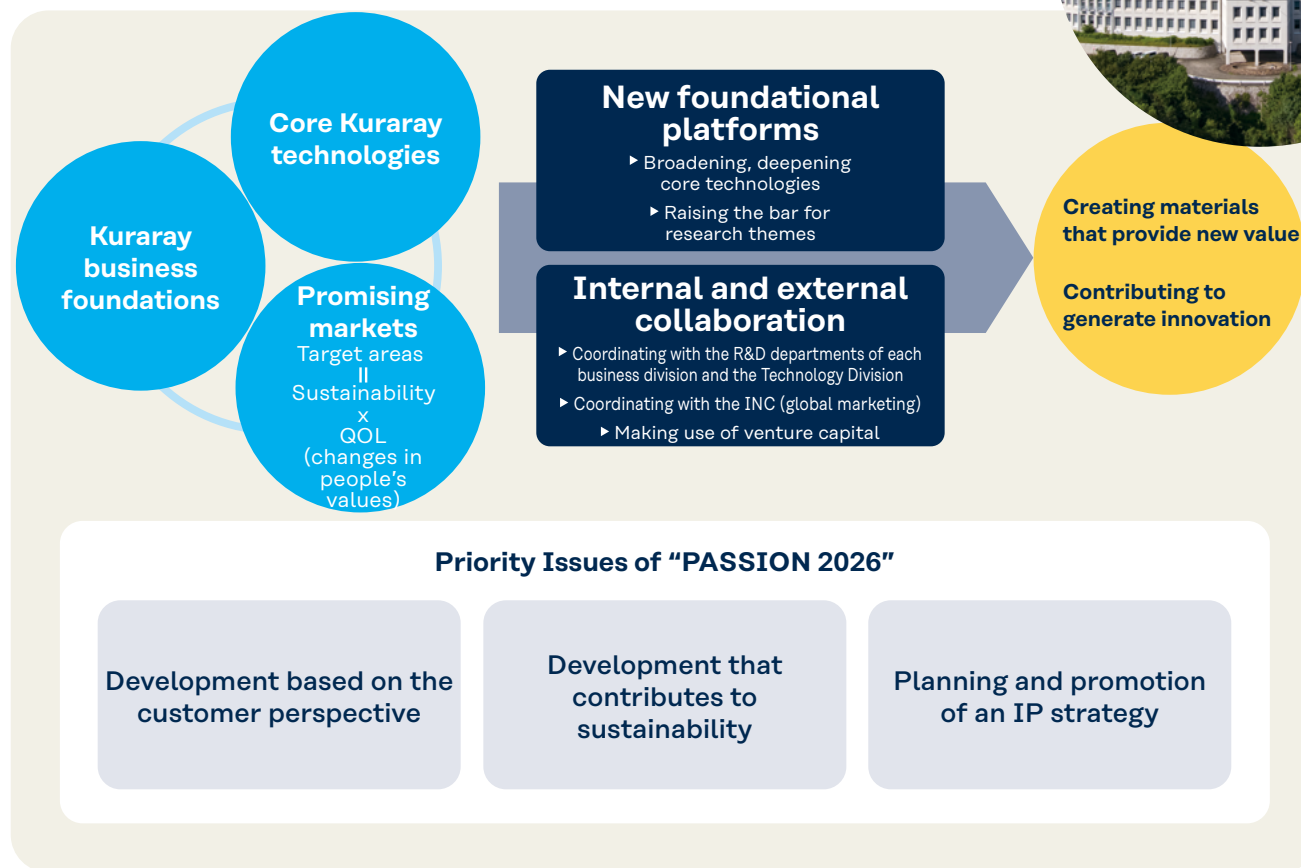


Basic Strategy for Creating Innovation

The Research and Development Division works closely with in-house companies, business divisions, and Group companies to promote projects that contribute to Group-wide business expansion and profit growth under the respective missions of “creating new business,” “strengthening and expanding existing businesses,” and “establishing and deepening core technologies.” Our Supporting Project has contributed to the sustained enhancement and expansion of existing businesses, while our New Business Creation Activities have broadened the scope of the business foundation by discovering promising new opportunities in areas peripheral to our businesses.

Under “PASSION 2026,” we established the Innovation Networking Center (INC) in January 2022 as an organization to generate innovation by integrating internal and external resources. The Research and Development Division and INC work closely together to promote collaboration both within and outside the Company, such as in the areas of global marketing activities for items under development and the generation of new business ideas through the sharing of R&D seeds and unmet needs*. We are also looking ahead to the society and living standards we hope to see 20 to 30 years down the road from the perspective of consumers, and backcasting from there to set more challenging R&D themes. In this way, we intend to incorporate new foundational platforms and extend our reach into new fields, not limited to conventional R&D areas.

* Unsatisfied or unidentified potential demand or needs.



Framework for Creating Innovation

Research and Development Framework

Aiming to become a Specialty Chemical Company achieving sustained growth, the Research and Development Division plays a core role in implementing R&D and new business activities as a corporate organization. The Research and Development Division manages the Kurashiki Research Center, Tsukuba Research Center, Intellectual Property Department, Planning and Administration Department.

Our research centers pursue the development of new businesses, products, and technologies using their core technologies, which include organic synthesis and synthetic polymer technologies, catalytic chemistry, polymer materials technology, environment- and energy-related technologies, precision polymerization and polymer modification, compound materials, polymer processing, and computational science. Drawing on their sophisticated analytical capabilities and safety assessment techniques, the research centers also function as analysis hubs for Kuraray Group companies, and work to address technical problems across the Group. We also established the DX Promotion Group in 2023 and are actively working on to incorporate digital R&D technologies to accelerate our R&D initiatives.

The Research and Development Division evaluates and analyzes IP data to support business strategies.

Each business division has an R&D department at its base plant. Including overseas bases, these plants engage in R&D activities while working closely with corporate and business divisions' research, development, and production bases.

The Technology Division, responsible for corporate production technology development, manages the Technology Development Center and the Technology and Maintenance Management Department. It promotes progress in production technology by partnering with the Production and Technology Management Division of each Group company and the Production and Technology Development Department of each plant. It has also begun collaborating with the Research and Development Division in the early stages of development to accelerate the evolution of new businesses and products. This division is also taking the lead in implementing digital strategies for Group-wide production technology R&D.

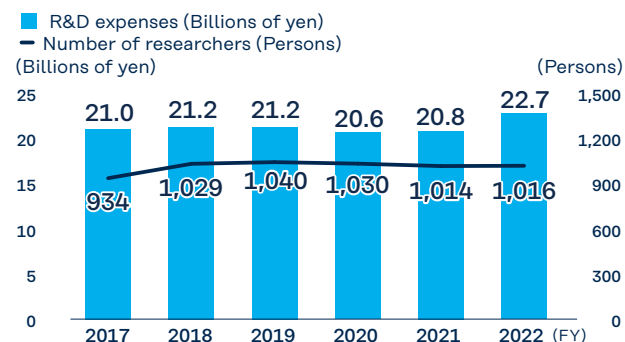
Innovation Networking Center (INC)

The most important objective of the INC is to generate innovation by integrating internal and external resources.

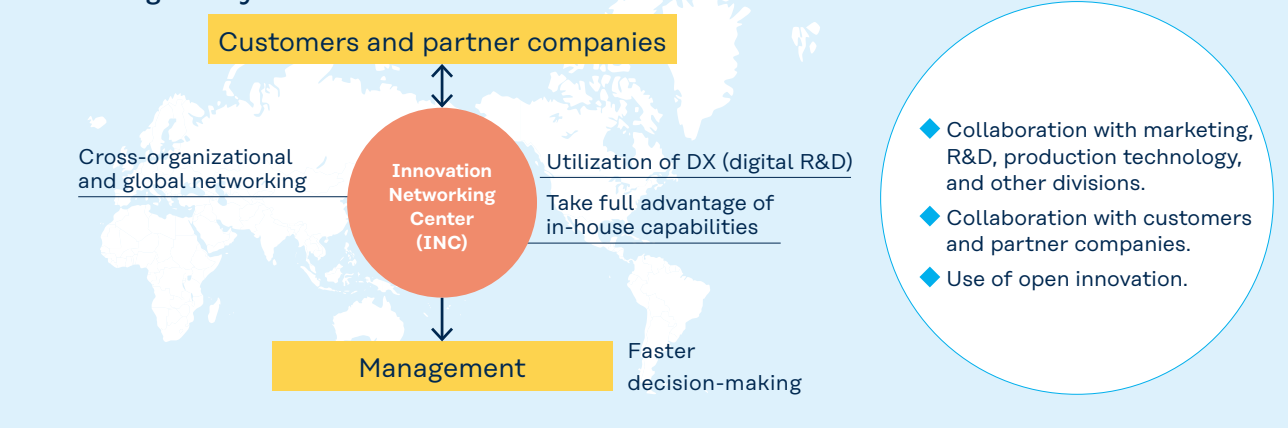
To empower individual divisions and customers to take the initiative in generating ongoing innovation, the Center is playing the role of accelerator in the Kuraray Group's innovation efforts, promoting activities involving the participation of all corporate divisions and employees. We have adopted an ambassador system for the Center, whereby around two dozen core members from diverse backgrounds are collaborating globally in digital venues with over 50 ambassadors representing various Group organizations.

By leveraging the Kuraray Group's resources on a global scale, from its diverse human resources in Japan and overseas and its unique technical capabilities to the customer relationships and market approaches it has cultivated over the years, we will continue to create new business opportunities over the longer term.

R&D Expenses and Number of Researchers



Networking Led by INC



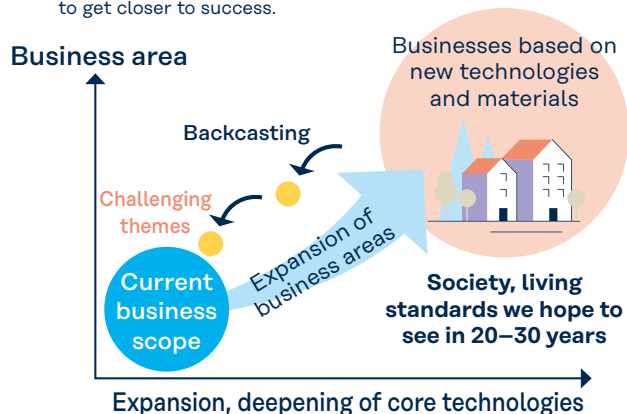
Priority Issues of "PASSION 2026"

Development Based on the Customer Perspective

Backcasting in R&D

The Research and Development Division generates R&D themes that lead to new value proposals addressing issues and trends in society and markets and customer issues. Under "PASSION 2026," we looked ahead to the society and living standards we hope to see 20 to 30 years down the road from the perspective of consumers and customers. Backcasting from there, we have set more challenging R&D themes that will enable us to achieve this. We drew up a longer-term roadmap for market areas and R&D activities the Kuraray Group should pursue going forward outside the sphere of our existing businesses. In the short term, our goal is to adopt a "fail fast"^{*1} approach. For this concept, we have set our sights initially on the areas of food and personal care. By capitalizing on networks within the Group and beyond, we aim to generate challenging R&D themes and extend our reach into new fields, not limited to conventional R&D areas.

*1 The concept of making mistakes quickly and learning from them to get closer to success.



Collaboration with INC (Global Marketing)

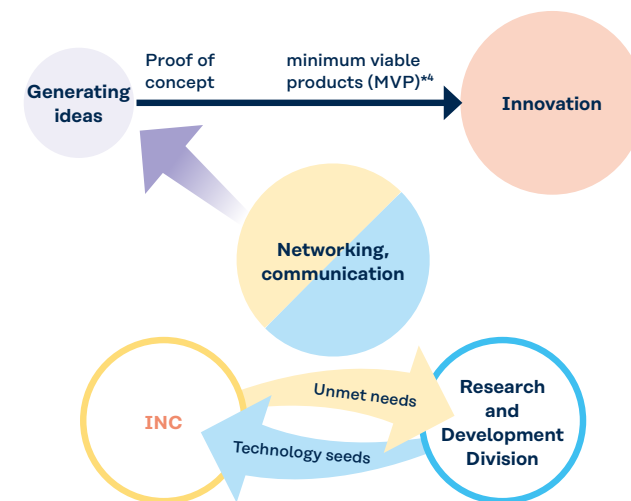
In achieving ongoing innovation, it is essential at the early stage of development to learn from markets and customers about where they see the value of materials made using the proprietary technologies of the Research and Development Division, and then implement proof of concept demonstrations. This requires being closely connected to the markets. For this reason, staff in charge of each of our R&D themes collaborate with the segment teams^{*2} formed by INC to promote marketing and develop products based on a deep familiarity with the market. In addition, as members of the segment teams, such staff seek to discover the unmet needs of customers at an early stage and encounter ideas that lead to new R&D themes.

We started holding regular Pitch Days^{*3} in 2022. These are global communication events that bring together members of the Research and Development Division and INC. The goal of the events is to construct a Group-wide innovation process, cultivate a culture of innovation, and achieve more active networking and communication. Through this venue, which combines the collective strengths of the Research and Development Division and INC, we are accelerating the generation of ideas, development of minimum viable products (MVP)^{*4}, and proof of concept to create innovation.

*2 Segment teams targeting six strategic areas: Automotive, Paper & Packaging, Agriculture, Sports & Outdoors, Architecture & Construction, Life & Personal Care.

*3 Events to speed up the "fail fast" process by inviting researchers from the Research and Development Division to give presentations on their seed development themes, and discovering new possibilities through questions and feedback from INC members.

*4 Products that provide the minimum viable value to users.



Development That Contributes to Sustainability

The Research and Development Division strives to further hone Kuraray's proprietary technologies and create new businesses in areas that serve to improve both sustainability and the quality of life, issues that are of pressing importance to society.

For instance, in the area of biodegradable materials that contribute to the natural environment, we are working to develop materials that are both biodegradable and functionally sophisticated. We are also working to shed light on the mechanism that controls biodegradability, and applying this to the development of materials. In this area, we cooperate with customers to confirm the value of the materials and enhance their performance, including exploring technologies for scaling up development. We will continue to contribute to the natural and living environments and support the creation of new businesses that tie into creating value for customers.

➤ [Target Fields P.09](#)

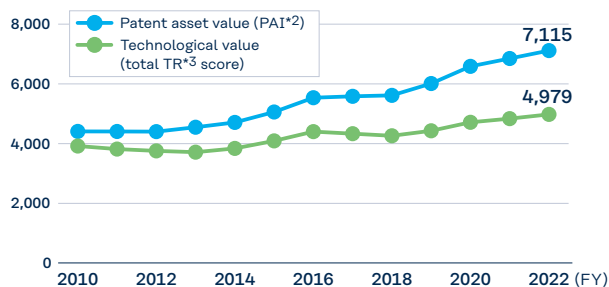
Planning and Promotion of an IP Strategy

The Kuraray Group seeks to respect its own intellectual property (IP) and that of other companies. With the aim of strengthening and accelerating our businesses and R&D in line with the Group’s management strategy, we engage in activities to create, protect, and make effective use of our assets, guided by our business, R&D, and IP strategies. We established the IP Management Center in January 2022 to support the IP strategies of each business division, while also formulating and implementing a globally integrated IP strategy. In this way, we are working to implement IP actions that go beyond our former strategy, focused on securing rights, to include business development activities.

Building an IP Portfolio

Aiming to achieve business results in line with the Kuraray Group’s management strategy, we have been working to build our IP portfolio*¹ as we grow the business on a global scale. As a result, we have raised both our patent asset value index (PAI: Patent Asset Index™*²) and technological value index (TR: Technology Relevance™*³) scores. We will continue to enhance our IP portfolio and develop a new IP strategy by leveraging our IP assets to drive business expansion and cross-border collaboration between companies and industries.

IP Portfolio



*1 Created by the Kuraray Group using the LexisNexis® PatentSight® patent analytics from the IP division of U.S.-based LexisNexis.
<https://www.lexisnexisip.com/solutions/ip-analytics-and-intelligence/patentsight/>

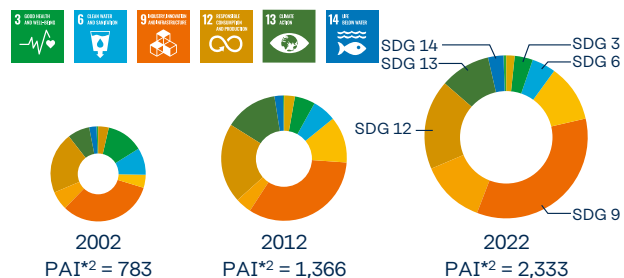
*2 Index of patent asset value of the entire portfolio calculated taking into account citations in junior applications and countries of application.

*3 Index of the technological value of the entire portfolio calculated based on citations in junior applications.

IP Analysis Related to Our Mission

The business activities of the Kuraray Group are grounded in our mission, which states that “We are committed to developing new fields of business using pioneering technology that improves the environment and enhances the quality of life throughout the world.” We categorized our IP related to this mission in terms of the Sustainable Development Goals (SDGs). Our analysis determined that patents related to developing new fields of business (SDG 9) accounted for 34% of our SDG-related patent portfolio and patents related to improving the natural environment (SDGs 6, 13, and 14) and improving the living environment (SDGs 3, 6, and 12)—which we have identified as material issues for the Group—together accounted for 39% of the portfolio. The patent asset value index scores for these IP are also increasing year by year. We will draw on this analytical data in new business

SDG-related patent portfolio



development, including identifying business areas where we can maximize the Kuraray Group’s competitive strengths.

Implementing an IP Management Cycle

The Kuraray Group has drawn on its unique technologies to create unparalleled products while maintaining and honing our competitive edge by pursuing proper IP management, which includes filing patent applications and securing IP rights on the outcomes of our R&D activities.

To navigate rapid changes in the business environment and the globalization of our business in recent years, and to make effective use of all our assets, we will continue to pursue the proper management of our IP. Specifically, we are creating an IP outlook based on the overall business outlook, which is rooted in business strategies originating from the Group’s management strategy. Our goal is to establish an IP management cycle, implementing actions in line with IP strategies based on the IP outlook and incorporating the results into the business outlook. Going forward, we will continue to build and capitalize on the IP portfolio to help achieve business results in line with our management and business strategies.

IP Management Cycle

