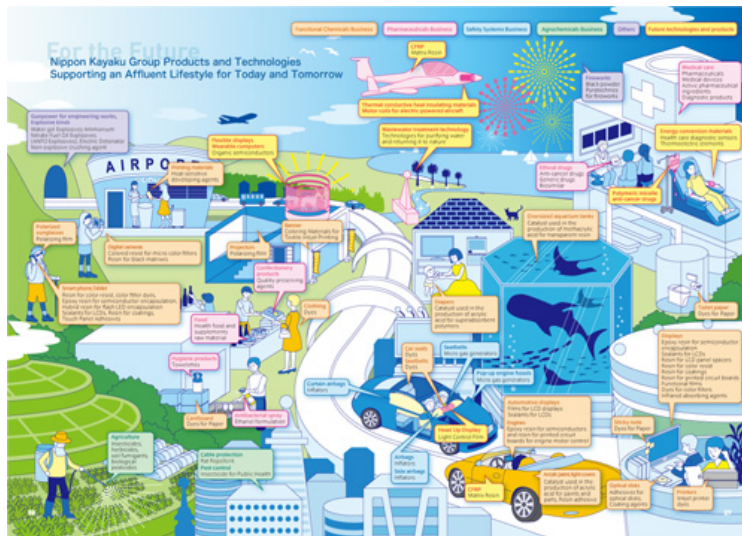




CSR Activities Fulfilling Economic Responsibilities

Current Nippon Kayaku Group Products and Future Technologies and Products Supporting an Affluent Lifestyle

The Nippon Kayaku Group has adopted a corporate slogan called Global "sukima" ideas and is striving to develop Nippon Kayaku into a company that the world truly needs, by developing high value added products with unique technologies that stand out in niche markets and elsewhere.



[View larger image](#)

The Nippon Kayaku Group's Businesses

This section will take a closer look at the 4 core businesses of the Nippon Kayaku Group as well as products that they developed with unique technologies that contribute to the betterment of society.

We are committed to promoting innovations by using our technological expertise. It is our goal to contribute to society by consistently supplying high-quality pharmaceuticals to improve patient outcomes, and to achieve more efficient medical spending.

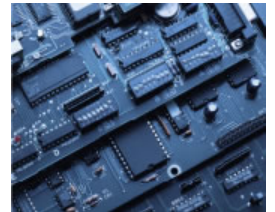
Contribute to the creation of an "Super Smart Society" by providing functional chemical materials that offer special characteristics for the fields of information and communication, and energy and resource conservation.



Functional Chemicals Business

We will contribute to society by supplying unique functional chemicals for the IT, ICT and resource conservation fields

The super smart society of tomorrow is expected to be one in which the goods and services we need will be supplied only in the necessary amount, resulting in more lively and comfortable lifestyles. In the field of ICT, the network connecting personal digital devices with home electronics and automobiles is growing, while rapid advancements are also being made in reducing the size and increasing the performance of semiconductor devices and improving the resolution of displays mounted on these digital devices. At the same time, there is growing demand for energy conservation and resource conservation. The Functional Chemicals Business is helping to realize this super smart society by supplying unique products to the fields of IT, ICT, energy conservation and resource conservation using its long-standing technologies in resins, pigments, and catalysts.



Functional Chemicals Business

Pharmaceuticals Business

We are committed to prompting innovations by using our technological expertise. It is our goal to contribute to society by consistently supplying high-quality pharmaceuticals to improve patient outcomes, and to achieve more efficient medical spending.

The Pharmaceuticals Business engages in research and development specializing in anti-cancer drugs and peripheral fields, focusing on polymeric micelle anti-cancer drugs that utilize nanotechnology as well as biosimilars and generic pharmaceuticals. Currently, we are participating in a Multi-national Phase3 Clinical Study of a monoclonal antibody biosimilar candidate for breast cancer as part of our efforts aimed at obtaining marketing approval for the next biosimilar following the success of FILGRASTIM BS and INFLIXIMAB BS.

We aim to contribute to society with innovations that are backed by our technological expertise and by consistently supplying high-quality pharmaceuticals to improve the level of treatments patients receive, and to achieve more efficient medical spending.



MiNK Web – an informative site targeting medical professionals developed by Nippon Kayaku

Pharmaceuticals Business

Safety Systems Business

With explosives safety technologies as our core competencies, we will contribute to society by making people safer around the world through our automotive safety components

Automobile production is forecast to grow by a sizeable margin in Southeast Asia and other emerging countries following a similar trend in China. Also, the average safety device content per vehicle is expected to rise dramatically going forward. The Safety Systems Business manufactures and markets automotive safety components based on many years of research using Nippon Kayaku's core competence of explosives technology. Furthermore, various departments are involved in the processes leading up to product launch starting with development. This allows us to simultaneously push forward with development, manufacturing and marketing, resulting in products being brought to market in a much



quicker time frame. Looking forward, we will strengthen the collaboration with our overseas sites to enhance product value globally and contribute to society.

Safety Systems Business

Agrochemicals Business

We will contribute to society by supplying safe agrochemical preparations technology that are compatible with the environment and indispensable to stable food production

In February 2016, the Agrochemicals Group launched a spiracle-blocking insecticide Fuhmon[®], ideal for Integrated Pest Management (IPM) limiting the reliance on chemical pesticides. This product offers four unique features: (1) it is made from polyglyceryl fatty acid ester which is used as food additive; (2) it can be applied unlimited multiple times and even up to a day before crop harvest; (3) it is possible to simultaneously exterminate mites, aphids, whiteflies, and powdery mildew; (4) it is effective against insects that have become resistant to conventional chemical pesticides. It has earned a solid reputation and is now widely used for produce vegetables such as strawberries and tomatoes.

Going forward, we will continue to contribute to agriculture by researching, developing and supplying technologies and materials closely in tune with customer needs.



Agrochemicals Business

Research and Development

Researching the Needs of Tomorrow: R&D for Organic Semiconductor Materials

The Research and Development Group will contribute to society, safeguard the life and health of the public, and support a comfortable life by executing R&D investments to consistently deliver the best products.

Additionally, the Research and Development Group is implementing R&D strategy with a medium- to long-term perspective to create new products and new business through open innovation inside and outside the company and by combining the intellectual properties and technologies of the Nippon Kayaku Group. The Kita-ku, Tokyo is one of the Nippon Kayaku Group's largest R&D hubs and considered a critical area for R&D and new business creation. We will concentrate resources here including researchers from each business field and facilities to achieve collaboration and integration of technologies and people.

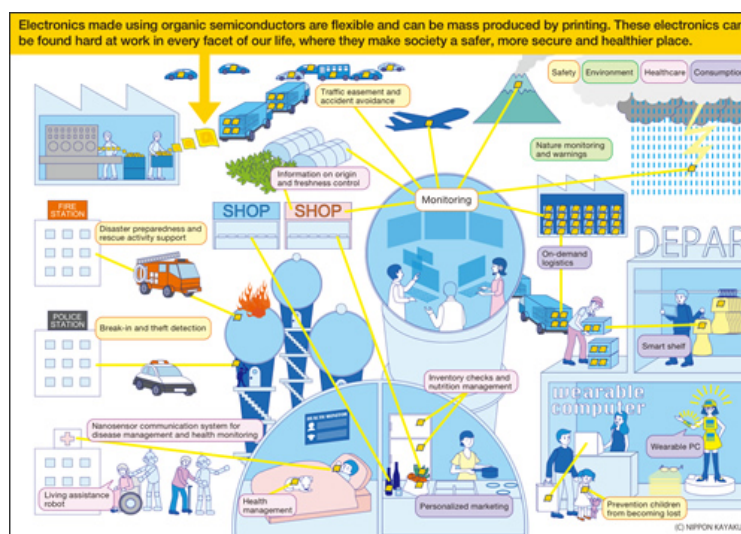


Inorganic semiconductor

[Learn more about our research laboratories](#)



Organic semiconductor



[View larger image](#)

Globalization of Research Activities

Following the policy of Nippon Kayaku's global management, the Research and Development Group is in the process of building a global R&D structure inclusive of overseas Group companies. While promoting greater interaction among researchers working for overseas subsidiaries, the Research and Development Group is carrying out the following activities from the perspective of CSR.

Hosting International Internship Students

Nippon Kayaku hosts interns from both domestic and overseas universities. Interns engage in various activities at Nippon Kayaku's laboratories with a focus on research and development, while also learning about corporate activities and Japanese culture. At the same time our employees receive a boost in terms of motivation and stimulation by working together with these young interns. Going forward, through these internships, we will continue to globalize our corporate culture and contribute to international exchange as well as the education of overseas students.

Joint Collaboration with Overseas Research Institutes

Nippon Kayaku actively engages in joint research with research institutes located outside of Japan.

We utilize web conferencing during joint research with overseas group companies to share information in a timely manner and speed up the R&D process. Also, we are among the first to adopt cutting edge technologies and materials, while utilizing industry-academia collaboration programs with overseas universities, to ensure that we can help create a sustainable society.

The collaboration and integration of our long-standing excellent technologies help promote problem solving and the creation of innovation.



For the Future

Nippon Kayaku Group Products and Technologies Supporting an Affluent Lifestyle for Today and Tomorrow

Gunpower for engineering works, Explosive kinds
 Water gel Explosives Ammonium Nitrate Fuel Oil Explosives (ANFO Explosives), Electric Detonator Non-explosive crushing agent

Flexible displays Wearable computers
 Organic semiconductors

Printing materials
 Heat-sensitive developing agents

Polarized sunglasses
 Polarizing film

Digital cameras
 Colored resist for micro color filters Resin for black matrixes

Smart phone, Tablet
 Resin for color resist, color filter dyes, Epoxy resin for semiconductor encapsulation, Hybrid resin for flash LED encapsulation Sealants for LCDs, Resin for coatings, Touch Panel Adhesives

Food
 Health food and supplements raw material

Hygiene products
 Towelettes

Cardboard
 Dyes for Paper

Antibacterial spray
 Ethanol formulation

Agriculture
 Insecticides, herbicides, soil fumigants, biological pesticides

Cable protection
 Rat Repellent
Pest control
 Insecticide for Public Health

CFRP Matrix Resin
Thermal conductive heat insulating materials
 Motor coils for electric-powered aircraft

Wastewater treatment technology
 Technologies for purifying water and returning it to nature

Banner
 Coloring Materials for Textile Inkjet Printing

Projectors
 Polarizing film

Confectionery products
 Quality preserving agents

Clothing
 Dyes

Diapers
 Catalyst used in the production of acrylic acid for superabsorbent polymers

Car seats
 Dyes
Seatbelts
 Dyes

Seatbelts
 Micro gas generators

Curtain airbags
 Inflators

Pop-up engine hoods
 Micro gas generators

Head Up Display
 Light Control Film

Airbags
 Inflators
Side airbags
 Inflators

Automotive displays
 Films for LCD displays Sealants for LCDs
Engines
 Epoxy resin for semiconductors and resin for printed circuit boards for engine motor control

CFRP Matrix Resin

Acrylic paint, light covers
 Catalyst used in the production of acrylic acid for paints and parts, Resin adhesive

Optical disks
 Adhesives for optical disks, Coating agents

Printers
 Inkjet printer dyes

Displays
 Epoxy resin for semiconductor encapsulation Sealants for LCDs Resin for LCD panel spacers Resin for color resist Resin for coatings Resin for printed circuit boards Functional films Dyes for color filters Infrared absorbing agents

Sticky note
 Dyes for Paper

Toilet paper
 Dyes for Paper

Oversized aquarium tanks
 Catalyst used in the production of methacrylic acid for transparent resin

Polymeric micelle anti-cancer drugs

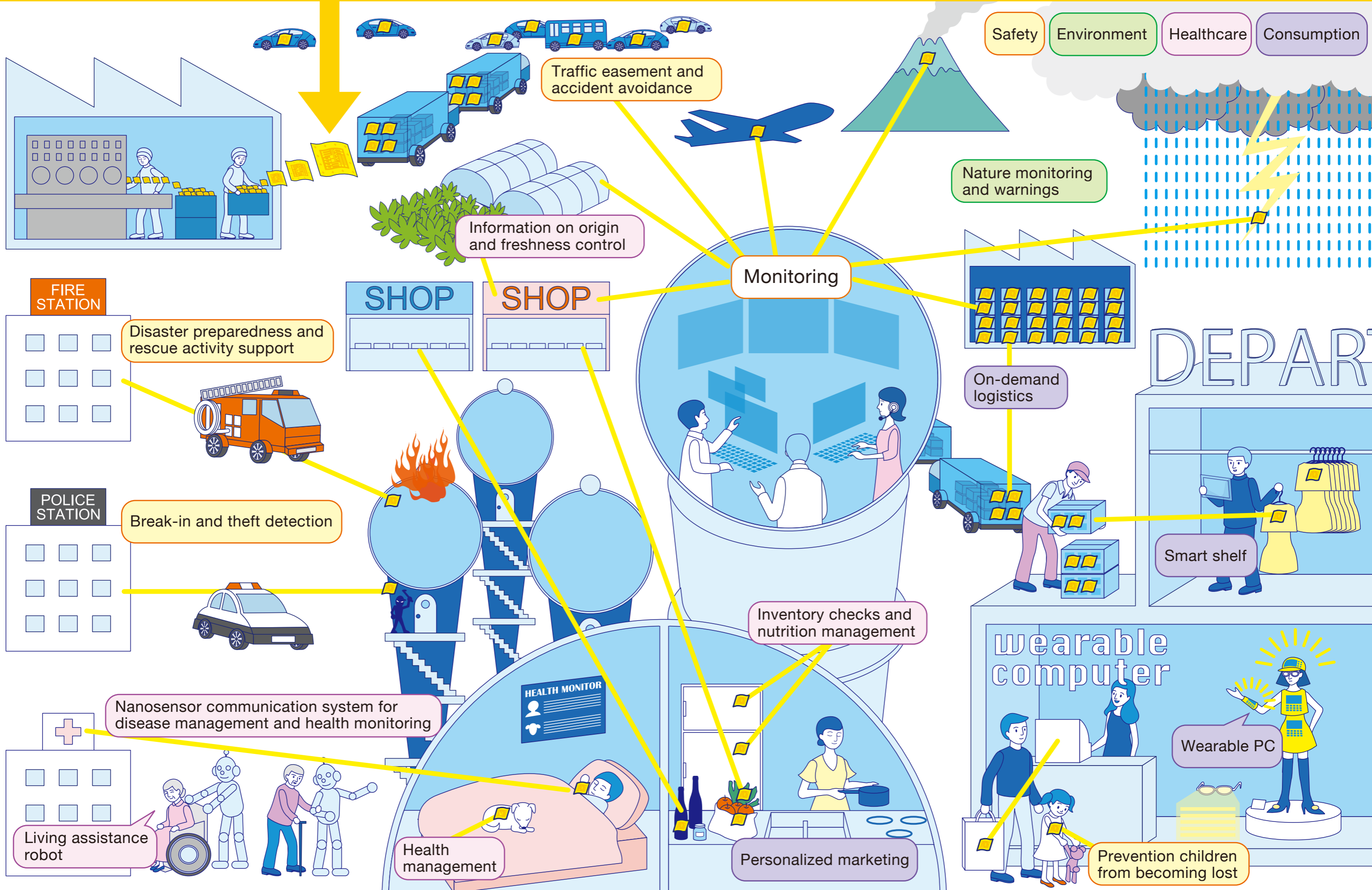
Ethical drugs
 Anti-cancer drugs Generic drugs Biosimilar

Energy conversion materials
 Health care diagnostic sensors Thermoelectric elements

Medical care
 Pharmaceuticals Medical devices Active pharmaceutical ingredients Diagnostic products

Fireworks
 Black powder Pyrotechnics for fireworks

Electronics made using organic semiconductors are flexible and can be mass produced by printing. These electronics can be found hard at work in every facet of our life, where they make society a safer, more secure and healthier place.



Safety Environment Healthcare Consumption

Monitoring

Traffic easement and accident avoidance

Nature monitoring and warnings

Information on origin and freshness control

On-demand logistics

Disaster preparedness and rescue activity support

SHOP SHOP

Break-in and theft detection

Inventory checks and nutrition management

Smart shelf

Nanosensor communication system for disease management and health monitoring

HEALTH MONITOR

wearable computer

Wearable PC

Living assistance robot

Health management

Personalized marketing

Prevention children from becoming lost