

Sharp and SDGs

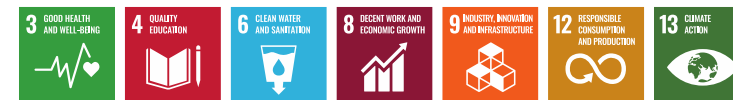
Contributing the SDGs through Business ... 021



Smart Appliances & solutions BU

Offering support through AIoT^{*1} for a safe, healthy, and comfortable lifestyle. Yielding a humanity-empowering smart life through people- and society-oriented AIoT.

^{*1} AIoT is a word coined by Sharp, combining the words AI (artificial intelligence) and IoT (Internet of things). Sharp is pursuing a more people-oriented world through AIoT-driven devices and services.



Business Overview

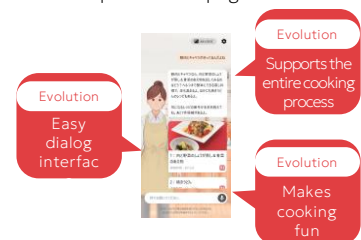
In our aim to help improve people's quality of life and create a sustainable society, the Smart Appliances & Solutions BU supplies end consumers and B2B customers globally with a variety of appliances, such as air conditioners, refrigerators, washing machines, microwave ovens, and air purifiers.

Major SDG Contribution Examples

- The Smart Appliances & Solutions BU continues to develop energy-saving technologies for individual white goods, such as air conditioners, refrigerators, washing machines and other energy-demanding appliances, and to develop resource-saving designs, such as for water-saving No-Holes Tub washing machines, while also expanding the incorporation of recycled plastics through the use of closed-loop material recycling technology^{*2}. In addition, the Smart Appliances & Solutions BU is continually working on the development of AIoT-compatible devices that automatically save energy while being adapted to each user's lifestyle. In fiscal 2024, it developed 86 AIoT-compatible models for the Japanese market. Overseas, it updated and expanded the range of services it offer that are tailored to the needs of regional markets, including ASEAN, Taiwan, and North America.

^{*2} Jointly developed with Kansai Recycling Systems Co., Ltd., a consumer electronics recycling company established in Japan with joint investment from Sharp and five other companies. See page 022.

- Sharp have stepped up our efforts to utilize generative AI, which will be the foundation of future society and technological innovation, and have launched a new service called "Cook Talk" for our Healsio superheated steam oven as our first white goods initiative. This new service utilizes the AIoT technology and expertise that it have cultivated over the past 10 years, as well as the evolving dialog interface unique to generative AI, to support the entire cooking process, including menu consultations and usage, through more natural dialog via a smartphone.



Hands-free operation combined with AI and a dialog-based interface makes cooking fun

- The Smart Appliances & Solutions BU works in collaboration with other businesses to address social issues. It have begun offering an expanded range of appliances that are compatible with the Life Eee Connect (solar home appliance connection) service, which is the first in the industry^{*3} to connect solar power generation with home appliances to reduce home appliance-related electricity bills. In addition to air conditioners and refrigerators, in fiscal 2024 it began offering this service for front-loading washer/dryers as well.

^{*3} For HEMS (home energy management system) services that manage home appliances and residential equipment. Based on Sharp findings (service launched on November 21, 2023).

Awards and Honors

- Plasmacluster Drape Flow Dryer 900 Series, High-Speed Oven SW99 Series, and Drawer Style Microwave Oven D33 Series win 2025 iF Design Award^{*4}



From left: 900 series Plasmacluster Drape Flow Dryer, SW99 series high-speed oven, D33 series drawer-style microwave oven

^{*4} An international design award that has been held since 1953. Entries are judged not only on their design but also on their idea, function, differentiation, and sustainability.

Business Outlook and Growth Story

In order to help create a sustainable society, the Smart Appliances & Solutions BU provides products and services that address pressing social issues, such as climate change and the circular economy, through more energy-efficient white goods, which includes the use of AIoT, through a responsiveness to the growing awareness of the need to conserve electricity and water, and through a concerted effort to reduce the use of virgin plastics. In addition, by leveraging the strength of our AIoT as an open platform, which can be integrated with other companies' devices, it will increase comfort and convenience, as well as create new value, such as through the use of vocalized speech in disaster prevention and other contexts to thereby contribute to a safer and more secure society.

Sharp Energy Solutions Corporation (SESJ)

Providing eco-friendly, energy-producing solar power systems to countries around the world to help realize carbon neutrality. Making life easier with energy solutions (systems and services) that make smarter use of electricity.



Business Overview

SESJ carries on the philosophy of founder Tokuji Hayakawa as it operates energy solutions businesses in Japan and overseas.

As countries and companies accelerate their efforts to achieve carbon neutrality, SESJ is actively contributing to the drive to realize a decarbonized society by providing appropriate solutions.

Major SDG Contribution Examples

- Gradual expansion of the Life Eee Connect service

In November 2023, Life Eee Connect, a service that utilizes proprietary AI technology in conjunction with solar power systems to reduce electricity bills, was launched as the first service of its kind in the industry^{*1}. In fiscal 2024, front-loading washer/dryers were added to the list of compatible devices, and the number of compatible air conditioners and water heaters, including those made by other companies, has been significantly expanded. SESJ will continue to expand its services as it aims to realize zero energy homes that make astute use of generated electricity.



Life Eee Connect (solar home appliance connection)

- Construction encompassing everything from solar power plants to power storage facilities

SESJ handles everything from design to construction and maintenance of solar power plants and has built many solar power plants in Japan and overseas. SESJ will apply its extensive know-how and proven technology to the construction of power storage facilities that store renewable energy, thereby contributing to the stable supply of clean energy.

Awards and Honors

- The Director-General of the Agency for Natural Resources and Energy Award, the New Energy Award 2024 Award title: Industry-first Life Eee Connect service utilizes AI to get the most out of renewable energy and reduce electricity bills for home appliances
- The Minister of Education, Culture, Sports, Science and Technology Award, the 54th Japan Industrial Technology Awards Award title: SLIM^{*2} lunar exploration spacecraft A total of 13 companies, including the Japan Aerospace Exploration Agency (JAXA), received the award



Plaque for the Japan Industrial Technology Award

^{*2} SLIM (Smart Lander for Investigating Moon) is a small-scale lunar exploration spacecraft developed by JAXA.

Business Outlook and Growth Story

In order to achieve carbon neutrality by 2050, Japan's Cabinet has approved the GX 2040 Vision and 7th Strategic Energy Plan. By expanding products and services that capitalize on its proprietary AI control capabilities to make efficient use of electricity generated by solar cells, and by promoting the spread of solar power plants and power storage facilities in Japan and overseas, SESJ will continue to develop its energy solutions business with the aim of helping to realize a richer future in which carbon neutrality and quality of life are harmoniously achieved.

^{*1} For HEMS (home energy management system) services that manage home appliances and residential equipment. Based on Sharp findings (service launched on November 21, 2023).

- Release of residential solar modules

SESJ has released new products in three series—the standard, basic, and flagship BLACKSOLAR ZERO series—to enable customers to choose the product that best suits their roof shape and size and other needs. Two options have been added in the BLACKSOLAR ZERO series to allow customers to make greater use of their roof's full capacity: the slim-type NQ-290BP model for narrow roofs for which installation has previously proven to be challenging, and the anti-glare NQ-236BG model that allows installation in north-facing spaces.

By offering these on the market, SESJ is contributing to more widespread adoption of solar power and the creation of clean energy.



Installation image (hipped roof and north-facing installation)

Smart Business Solutions BU

Through smart products and services that utilize AI and data, Sharp supports its customers' business operations and provides a comfortable working environment anytime, anywhere. Sharp seeks to address social and business issues from a customer-centered perspective that will contribute to the realization of a sustainable future.



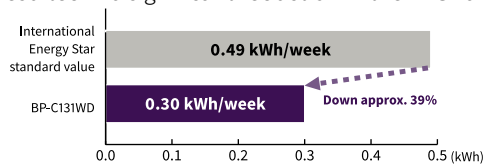
Business Overview

The Smart Business Solutions BU focuses on four areas: offices, the public sector, retail, and logistics. By developing AI- and data-driven smart products, and by realizing smart businesses that combine AI and DX (digital transformation) services tailored to the workplace, the BU provides future-oriented B2B solutions that respond to a changing society and support the evolution of workplaces.

Major SDG Contribution Examples

- BP-C131WD digital full-color MFP

The compact and lightweight design reduces the volume by approximately 27%*¹ and the number of parts by approximately 17%*¹, which reduces CO₂ emissions during the production process. And recycled plastic makes up approximately 50% of the total plastic used in the MFP's main body, thus reducing environmental impact. The newly developed pad fusing system and energy-saving toner shorten the time needed to reach the specified fusing temperature and enable low-temperature fusing. This has resulted in a significant reduction in the TEC value*².



*¹ Compared to the previous model, MX-C300W.

*² TEC: Typical electricity consumption. TEC values are derived using measurement methods defined by the international Energy Star program requirements.



Corporate Social Responsibility

The Smart Business Solutions BU's main production sites, SOCC*³ in China and SMTL*⁴ in Thailand, received silver certification for a second year in a row following a VAP audit*⁵ conducted by the RBA*⁶. The Smart Business Solutions BU will continue to strengthen its management systems for labor, ethics, environment, and health and safety, aiming to ensure that Sharp is a company trusted by society.

*³ SOCC: Sharp Office Equipments (Changshu) Co., Ltd. (China).

*⁴ SMTL: Sharp Manufacturing (Thailand) Co., Ltd.

*⁵ VAP: Validated assessment program. An audit program related to corporate social responsibility.

*⁶ RBA: Responsible Business Alliance.

Awards and Honors

- ePaper color electronic paper display

Outdoor-compatible A0-sized ePaper wins the Minister of Economy, Trade and Industry Award at CEATEC Award 2024



The A0-sized ePaper consumes zero power when maintaining the displayed content, and, when combined with solar power generation, it contributes to energy conservation and reduced CO₂ emissions during operation. By capitalizing on its visibility and low power consumption performance, Sharp also aims to contribute to improving the resilience of bulletin boards and public information provision in times of disaster.



- 2 models of ePaper color electronic paper display (EP-C251/C131) win Agency for Natural Resources and Energy Commissioner's Award in the product and business model category of the 2024 Energy Conservation Grand Prize program
- BP-C131WD digital full-color MFP wins 2024 Good Design Award and 2025 iF Design Award
- Multi-layer robotic storage system wins 2024 Good Design Award

Business Outlook and Growth Story

Based on the Smart Workplace Business Group's vision of "Empowering global collaboration through technology and networks," the Smart Business Solutions BU will contribute to the realization of a sustainable society through the development of AI-driven hardware and solutions.



Dynabook Inc.

Dynabook is making people's lives and society better by "changing the world through computing and services," developing "true computing that reflects real needs and that supports communities," and offering "new added value and services developed from the user's standpoint."



Business Overview

Dynabook plans, develops, manufactures, sells, supports, and services personal computers and system solutions. We are pursuing the fusion of hardware ("dynabook as a Computing") and services ("dynabook as a Service") and strengthening the technology that supports this endeavor.

Major SDG Contribution Examples

- Using sustainable materials in products
 1. The bottom of the dynabook P56 case is made of a resin containing 50% PCR (post-consumer recycled) material.
 2. The rubber feet on the bottom of the dynabook X83/X74/X94 are made of biomass plastics containing plant-derived materials, reducing the amount of petroleum-based materials used.
 3. The magnets for the components in the dynabook C6/C7 are made from 100% recycled rare earth materials.
 4. The bezels of the dynabook C6/C7 are coated with water-based paint that reduces volatile organic compounds.



dynabook C6/C7

- Pursuit of EPEAT^{*1} environmental certification (Japan newly added as target destination country)

Dynabook has registered 24 models with a Gold rank and 10 models with a Silver rank under the EPEAT labeling system, which indicates that electronic products are environmentally friendly. For fiscal 2024, Japan has been added as a new target destination, joining both the U.S. and Canada.



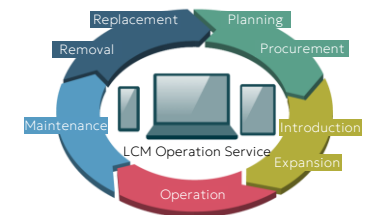
^{*1} Electronic Product Environmental Assessment Tool.

Business Outlook and Growth Story

- Establishment of a new Dynabook West Japan LCM Center, scheduled to begin operations in the first half of 2025

The LCM (life cycle management) operation service, which Dynabook is focusing on, handles the life cycle (operational management) of PCs on behalf of customers. Since the service was renewed in 2022, instead of the previous telephone and email communications, customers can now check work requests, receipts, work progress, expected arrival dates, and other items on a dedicated LCM web portal, which has greatly contributed to customer convenience and business efficiency.

In order to expand service capacity and area, and, as part of business continuity planning measures, the Dynabook West Japan LCM Center is being established in Osaka to complement the currently operating Dynabook PC General Support Center in Chiba.



PC kitting at the LCM Center

- Orders for dynaEdge XR1 see-through XR glasses begin on March 10, 2025

The dynaEdge XR1 see-through XR glasses allow users to see both the real world and digital information at the same time. By adopting a see-through optical module, it is possible to display information in space while still being able to see the real world. This will allow us to provide new solutions that combine real and virtual spaces.



dynaEdge XR1 see-through XR glasses

TV Systems BU

Promoting innovation, better health, and environmental protection with ideas that make life more convenient and comfortable.



Business Overview

The TV Systems BU develops and sells products, such as AQUOS LCD TVs, with unique features that put them ahead of what other companies are offering. We continue to work to expand the possibilities of AV equipment. In addition to developing basic functionality, i.e., picture and sound quality, we pursue ESG and SDGs-related manufacturing and solutions to deliver ideas that will make life more convenient and comfortable.

Major SDG Contribution Examples

- Achieving both energy savings and improved image quality

Of the 13 new 4K TV models the TV Systems BU released in Japan between May and June 2025, 12 models achieved 100% of the TV energy efficiency target standard value^{*1}. The mini LED model boasts impressive brightness and color expression, while increasing brightness by approximately 1.5 times^{*2}. By utilizing a combination of advanced technologies, such as fine brightness control and a highly efficient light-reflecting sheet, the model achieves a 32% reduction in annual energy consumption^{*2}, thus achieving both excellent image quality and energy-saving performance.

^{*1} The target standard value for energy efficiency set by Japan's Agency for Natural Resources and Energy.

^{*2} Comparison of brightness (peak) and annual energy consumption between Sharp's mini LED TVs 4T-C65HP1 and 4T-C65GP1 (released in 2024).

- Expanded use of recycled plastics

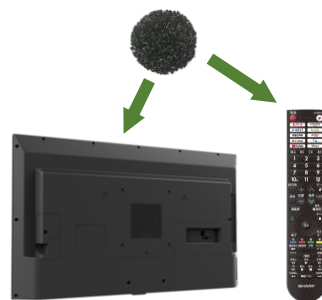
Since 2023, the TV Systems BU has been expanding its use of recycled plastics in models for the Japanese market. In 2024, recycled plastics were adopted for the rear cabinets of small and medium-sized models (43 inches or less), and the PCR (post-consumer resin) material content of these models was approximately 20%. In 2025, the TV Systems BU plans to use recycled plastics in the remote control casings of all new product models and to expand the number of models that use recycled plastics in rear cabinets, thereby further expanding usage.



4T-C65HP1 4K mini LED TV

Energy saving standard achievement rate (multi-level evaluation)  101% (★3.0)
Annual energy consumption 145 kWh/year

Recycled plastic



Rear cabinet

Remote control

- Inclusion of the Memelog^{*3} app that allows users to easily check their eyesight on their TV screen

The TV Systems BU is incorporating healthcare-related apps on its TVs. New products in 2025 will be equipped with Memelog, which allows for simple vision assessment and log management with the aim of using the TV to detect deterioration of vision early. By providing an environment that makes it easier to notice changes in vision, the TV Systems BU is helping to promote eye health.



Memelog screen

^{*3} Eyesight checks performed using this app are not intended to diagnose eye conditions.

Business Outlook and Growth Story

- Using generative AI to turn TV into a communication partner

AI Partner, which was exhibited in autumn 2024 at the Sharp Tech-Day '24 Innovation Showcase and at CEATEC, utilizes an AI avatar that appears on users' TV screens to serve as their personal 'concierge' in daily life, providing a variety of services through natural conversation.

Moving forward, the TV Systems BU will work to incorporate AI into its TVs as a means of encouraging lifestyles that support ESG and the SDGs by providing eco-friendly shopping, healthcare consultations, and energy-saving advice.



AI Partner screen (under development)

Mobile Communication BU

Using communication technology to build a society where everyone has an equal opportunity to find decent quality of life and work.



Business Overview

The Mobile Communication BU aspires to be a business unit that leverages communication technology to keep on producing new value. By developing diverse networked devices like smartphones routers and creating solutions and services, we provide products and services that inspire people to live more joyful lives.

Major SDG Contribution Examples

● AQUOS wish5 smartphone

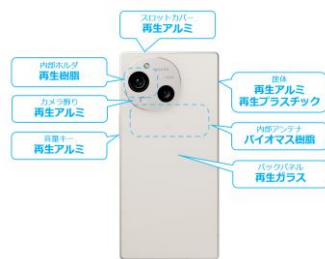
Like the previous model, the AQUOS wish4, the casing uses recycled plastic. In addition, this is the first Sharp device to support IPx9. The improved waterproof performance means it can be used for a longer period of time. This initiative has contributed to reducing waste materials and limiting the use of new materials, making this a more environmentally friendly model than the previous one.



AQUOS wish5 smartphone

● AQUOS R10 smartphone

Following on from the previous model, the AQUOS R9, recycled metal materials are used for the exterior metal parts, including the casing, and biomass materials continue to be used for the internal parts. Additionally, by increasing the use of recycled plastic parts, the Mobile Communication BU has significantly improved the proportion of environmentally friendly materials being used. A balance of design and environmental-friendliness has been achieved, which improves user value.



AQUOS R10 smartphone

Other Examples

● Inforia for Hotel, eAssistant Concierge

The Inforia for Hotel room information service and the eAssistant Concierge AI concierge service facilitate non-contact/non-face-to-face customer service and better operational efficiency.

● “home 5G”^{*1} router

With simple installation that requires only a power outlet to plug it into, this router turns users’ homes into an ultra-high-speed Wi-Fi environment convenient for telework and online learning.

^{*1} For NTT Docomo.

Business Outlook and Growth Story

The Mobile Communication BU will continue to provide products and solutions that help in addressing lifestyle and work style-related issues, while also aiming to provide new value.

Already the BU has brought to market such products as the Sugomimi wireless earphones, MiRZA^{*2} XR glasses, Rear Multi-Operation Panel^{*3} in-car device, and a cashless payment terminal^{*4}. In the future, it plans to pursue satellite communications equipment and other next-generation data communications business. By broadening its business domain beyond smartphones, it will continue creating products and services that further enrich people’s lifestyles and work styles.

^{*2} Manufactured by NTT Qonoq Devices, Inc. (a joint venture with NTT Qonoq, Inc.).

^{*3} For Toyota Motor Corporation.

^{*4} Jointly developed with NTT Data Japan Corporation.



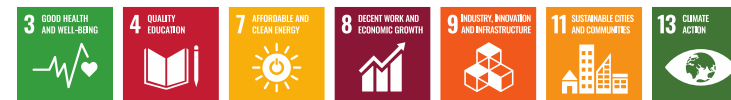
Top: Inforia for Hotel
Middle: eAssistant Concierge
Bottom: home 5G



Business domain expansion
(image)

Corporate Research & Development Group

By using society-changing, proprietary, world-first, and world's-best technology to build entirely new ecosystems and create and expand new businesses, we are contributing to a sustainable society.



Business Overview

The Corporate Research & Development Group is working to create innovative technologies that will serve as the fundamental engine for innovation company-wide, as well as to build platforms centered on Sharp's unique technologies. Our aim is to help make society both people and environmentally friendly by tackling the challenge of new business creation and accelerating the pace of innovation achievement through the rapid deployment in society of the fruits of development.

Major SDG Contribution Examples

- Contributing to a sustainable environment through CE-LLM^{*1}

As a tool for utilizing AI, the Corporate Research & Development Group widely applies low power consumption-promoting CE-LLM edge AI technology across all business areas to facilitate the development of products that reduce environmental impact.



Edge AI

- Innovation in pipeline infrastructure maintenance

As water pipe infrastructure maintenance becomes increasingly important, the Corporate Research & Development Group is helping address this issue by applying the image and acoustic analysis technology it has cultivated to date to reduce the number of workers required and to improve efficiency.



Pipeline inspection solutions

- Spreading the use of renewable energy

The Corporate Research & Development Group is accelerating the development of highly safe zinc-air flow batteries, which have the potential for large-scale energy storage and will advance efforts toward achieving carbon neutrality.



Zinc-air flow batteries

^{*1} CE-LLM (Communication Edge-LLM) is a registered trademark of Sharp Corporation.

Awards and Honors

- 2024 Innovation and Environment Bureau Director-General's Award goes to two Sharp employees at the Ministry of Economy, Trade and Industry's Industrial Standardization Business Awards
This award recognizes the employees' achievements in promoting industrial standardization, including the formulation of international and domestic standards and conformity assessment activities.
- Ministry of Internal Affairs and Communications' SCOPE^{*2} Research and Development Encouragement Award goes to two Sharp employees
The award recognizes the employees' achievements in pursuing "R&D of wireless link technologies to obtain international standards for advanced 5G through Japan-U.S. industry-academia collaboration."
- Japan Resilience Award Grand Prize goes to Sharp
This award was given in recognition of the demonstration of a system to support efficient and safe search activities by search teams looking for missing persons.

^{*2} SCOPE (Strategic Information and Communications R&D Promotion Programme) is a competitive funding system that invites highly innovative research and development projects in the field of information and communications technology from a wide range of research institutions, including companies, universities, and national research and development agencies, and commissions research and development after selection and evaluation by external experts.

Tackling New Industries

The Corporate Research & Development Group aims to create new value by deepening and integrating core technologies as it accelerates the realization of the next innovation and explores future technologies in new industrial fields such as mobility, industrial digital transformation, robotics, and space.



Mobility



Industrial digital transformation, robotics