Sony conducts its business around the axis of “emotion” and “people”. In order to have people connected through emotion, it is necessary to create a society in which everyone can live in peace of mind and a healthy global environment. Sony sees great value in contributing to solving social and environmental issues through technology and business.

### Contributing via Technological Development

#### Intelligent Vision Sensors “IMX500”:
**Edge AI Solutions That Help Solve Social Issues**

In May 2020, Sony Semiconductor Solutions Corporation (SSS) announced the commercial release of its IMX500 intelligent vision sensors, the first image sensors in the world to be equipped with AI processing functionality. They feature a stacked configuration consisting of a pixel chip and logic chip, which are key technologies of SSS image sensors. The logic chip is equipped with SSS’s original DSP (Digital Signal Processor) dedicated to AI signal processing, and embedded memory for the AI model.

The spread of the IoT has made cloud AI processing systems commonplace. However, there is a concern that this will lead to increased CO₂ emissions as IP traffic and data center electricity consumption rise due to higher data volumes from a growing number of IoT devices. Edge AI processing addresses these problems by employing IoT devices that process and analyze data. SSS developed the IMX500 to be capable of outputting the desired metadata as semantic information. Because it only extracts necessary data, the data transmission latency, power consumption, and communication costs are reduced. Furthermore, privacy concerns are addressed by not outputting information that can identify an individual.

One next-generation solution utilizing the IMX500 is an initiative to curb climate change. The issue being tackled is that most commercial buildings currently keep their heating, ventilation and air conditioning systems running whether people are present or not. Nomad Go is an American company that creates computer vision technology. With the aim of finding a solution to that issue, it utilized the IMX500 and Microsoft’s Azure AI to effectively develop an intelligent building solution. Computer vision technology detects whether people are present in a commercial space and, if so, how many for how long. It precisely adjusts the room air conditioning as necessary, reducing energy use and the associated greenhouse gas emissions. SSS also announced the launch of its AITRIOS™ edge AI sensing platform in October 2021. AITRIOS is a one-stop platform that provides various partners involved in development with all the features they need to efficiently develop and deploy solutions. The platform supports partners in efforts to build optimal systems in which the edge and the cloud function in synergy and address global environmental issues, thereby helping to solve issues with cloud systems.

*AITRIOS and AITRIOS logos are the registered trademarks or trademarks of Sony Group Corporation or its affiliated companies.*

#### IoT for a Sustainable Society:
**Sony’s Earth MIMAMORI platform**

In order to realize a sustainable society, it is necessary to constantly protect various regions such as mountain forests, satoyama (woodlands surrounding rural settlements), rivers, and coasts. Furthermore, it requires the detection of anomalies to prevent problems from arising, instead of addressing environmental issues after they have already arisen. Such systems can only be realized through the ability to acquire and transmit data in a global sensor network extending to mountainous and coastal areas not serviced by conventional mobile networks. They also require devices and networks that can function in areas where electricity service is difficult.
Sony has a range of technologies to realize these systems.

- **NIKISO500**, an intelligent vision sensor equipped with AI processing functionality
- Low-power edge AI devices such as **SPRESENSE™** that offer advanced sensing in a battery-powered device
- Radio signal processing technology that enables low power and low bitrate data transmission with a range of over 1,000 km
- **Prediction One**, an analysis tool that makes useful predictions from the data collected

And more

Combining these technologies enables sensing all around the world, even in locations where humankind is not active. The data from such sensing can be collected by low-orbit satellites and the necessary information relayed to human society via AI processing. Sony calls this concept “MIMAMORI” and is engaged in research and development to make this mechanism to change human behavior patterns a reality. Within frameworks such as a comprehensive alliance with the Japan International Cooperation Agency (JICA) and the Social Innovation Division for Planetary Boundary established at Hokkaido University, Sony is collaborating with external partners in joint research and demonstration tests at various locations around the globe. These projects will help to prevent environmental destruction and predict emergencies such as river flooding and wildfires, as well as increase agricultural and livestock productivity.

**MIMAMORI**

A project aimed to build a sustainable society where that value is shared worldwide. By letting them see Earth from space, and to contribute to building a sustainable society and find solutions to environmental issues, Sony, the University of Tokyo and JAXA founded STAR SPHERE, a project that takes “Unleash Space” as its motto. The three partners aim to launch a man-made satellite in 2022.

The STAR SPHERE satellite will be highly maneuverable with 360 degree attitude control so that members of the public can explore and discover new aspects of the Earth and stars through the camera, such as the ever-changing hues of the aurora for example. Since half of the satellite’s orbit will be at night, it will be installed with Sony high-sensitivity image sensors to help boost its environmental efficiency in operations such as the visualization of night-time economic activity. Sony intends to deliver “an experience connecting space and reality” via images captured in real time by checking the live stream from the camera when the satellite passes over an antenna on the ground station.

Up until now, satellites have been operated by specialized engineers, but Sony released a prototype shooting simulator in January 2022 that is simple and fun for laymen to use. Web content has been used to give the simulator intuitive operability, and Sony’s Mapry 3D web map technology is leveraged for beautiful expression - the map data is optimized for 3D. The simulator can set shooting sequences as well as time frames for images to be shot. Space is also a place where we can learn about Earth, and Sony has launched the Space Inspiration Competition in tandem with schools and educational institutes to use the power of entertainment to expand people’s view of space.

Going forward, Sony aims to help to make people aware of just how precious Earth is by letting them see it from space, and to contribute to building a sustainable society where that value is shared worldwide.

**Synecoculture**

Conventional agriculture largely focuses on increasing productivity from a single crop, by plowing top soil, spreading fertilizer, and applying agrochemicals. These practices damage ecosystems and cause environmental problems. Sony Computer Science Laboratories, Inc. (Sony CSL) successfully conducted demonstration tests for Synecoculture, a new agricultural practice that balances productivity and biodiversity, moving closer toward sustainability. Synecoculture is already being used in the Sahel region in Africa and has the potential to have a major global impact by contributing to desert greening and helping local economies around the world.

Synecoculture eliminates the need for the plowing, fertilizing, and agrochemical use that impact the environment, by taking maximum advantage of the material cycling that occurs naturally in ecosystems, aiming to create rich ecosystems with a diverse mix of plants that coexist together and grow lushly. The importance of building ecosystems with a high degree of biological diversity and functionality is increasing in response to climate change, food crises, and pandemics.

Synecoculture provides a fundamental solution to such global agenda. Sony CSL is also working to supply new value through augmented ecosystems, which expand the applications for Synecoculture beyond food production to the creation of ecosystems with diverse objectives and functions. The project supports education to enhance the understanding of natural environments and adds new value to the basic infrastructure of urban and living spaces. Building on this project, Sony founded SyncoO Inc. to create sustainable environments and industries based on the renewable natural capital in which society should be rooted.

**STAR SPHERE**

In August 2020, Sony announced the development of a nano/micro-satellite equipped with Sony camera equipment that can be operated by users to shoot images, and a joint development and technology demonstration agreement with the University of Tokyo and the Japan Aerospace Exploration Agency (JAXA).

Up until now, space missions for industrial purposes such as planetary exploration or space communication and surveys have dominated, and only a few people, such as astronauts, have experienced manned space flights. Believing it important that ordinary people can experience the universe for themselves and see Earth in a new light, as a planet in space, if humanity is to create sustainable societies and find solutions to environmental issues, Sony, the University of Tokyo and JAXA founded STAR SPHERE, a project that takes “Unleash Space” as its motto. The three partners aim to launch a man-made satellite in 2022.

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**Method of open-field agriculture and augmenting ecosystems by utilizing the self-organizing power of the ecosystem**

**Sony’s Purpose & Values**

The Sony Group Code of Conduct

Approach to Sustainability

Editorial Policy

Business Overview

Sony’s Sustainability

Addressing Social and Environmental Issues

Environment

Employees

Respect for Human Rights

 Responsible Supply Chain

Quality and Customer Service

Community Engagement

Ethics and Compliance

Corporate Governance

Data Section

GRI Standards Content Index
Creating new businesses and supporting the business growth of Sony has participated for many years in the global ecosystem for social and sustainable society. SSAP engages in open innovation with companies, organizations, and research institutes. SSAP provides startup support services to companies in industries that are expected to show strong growth. Sony Innovation Fund 3 L.P. is intended to contribute to social progress and the creation of sustainable societies via ESG-focused investment and support for venture companies. The Sony Startup Acceleration Program (SSAP) was launched in 2014 to create Sony startups and support project operation. SSAP provides seamless support from ideation to visualization, business verification, social implementation, and expansion. Leveraging Sony’s experience and expertise in creating new business internally and globally, SSAP also provides startup support services to external organizations including major corporations for their new business development, venture companies, SMEs, non-profits (NPOs), educational institutions, and research institutes. SSAP engages in open innovation with companies and organizations, and aims to bring people’s ideas to life and create an affluent and sustainable society.

R&D

In Corporate R&D (Sony Group Corporation’s R&D organization), Sony invests resources based on established financial discipline while envisioning the future business portfolio of the entire Sony Group. Prioritizing technologies that are expected to have applications in a variety of businesses, Sony will focus on areas of technology such as the “3R Technologies” of Reality, Real-time and Remote, as well as AI, sensing and security. Corporate R&D carries out various research and development activities in collaboration with multiple R&D organizations located in Japan, China, India, Europe and the United States, utilizing the different characteristics and strengths of each area. While striving to attract skilled research personnel locally, Corporate R&D aims to promote further collaboration between the various businesses within the Sony Group. Additionally, Corporate R&D continues to strive to enhance ease of movement for management and personnel between each R&D organization and strengthen its R&D from more diverse perspectives. For cross-sectional projects such as those in the entertainment and financial services areas, Corporate R&D assembles teams with members from various organizations to promote R&D activities through the flexible and efficient collection of knowledge. Corporate R&D is also proactively taking part in open innovation, including collaboration with universities and other research institutions, in an effort to gain insight into the motivations of creators and users from a wider perspective to enhance the potential of its business.

Research & Development

Corporate Venture Capital

Sony has participated for many years in the global ecosystem for creating new businesses and supporting the business growth of Sony. In the long-term, Sony AI also envisions helping to solve global-scale issues beyond Sony’s business domains. Recognizing the power and influence that AI can have on society, Sony AI aims to contribute by developing AI that is responsible, fair and transparent.

Related Links

- Contributions to Solving Environmental Issues
- Technology

Contributing via Business Support

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Sony Startup Acceleration Program (in Japanese)

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