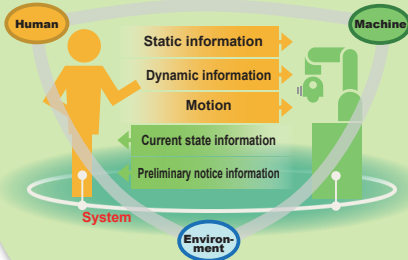


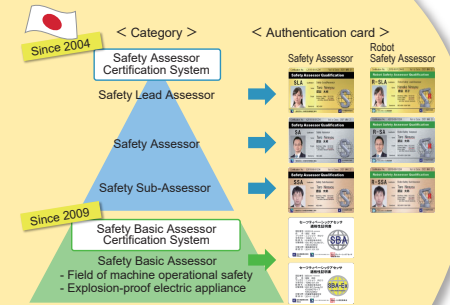
# Technology



In Safety2.0, safety can be achieved by collaboratively integrating the information on human, machine and environment effectively and efficiently using the ICT technology. A Safety1.0-based system uses a two-state control—"safety is not confirmed, therefore the operation is stopped" and "safety is confirmed, therefore the operation is allowed." A Safety2.0-based system, on the other hand, uses a multi-state control. Specifically, the system controls the operating state of a machine flexibly depending on the conditions of humans and the environment. This way the machine is brought into an optimally safe condition without stopping (safety without downtime), and the productivity can be enhanced while ensuring safety and increasing the operation rate. In addition, safety can be recognized visually by sharing information.

# People

In order to build and operate a safe and reliable system that brings about anshin (piece of mind), workers need to have a comprehensive knowledge and understanding of machine safety, functional safety, and robot safety. A qualification system called "Safety Assessor System" was developed with the support of the Ministry of Economy, Trade and Industry to accredit the knowledge of safety. Not only design engineers and machine operators, but also managers and executives need to have an understanding of safety and qualification according to their respective responsibilities.



## Establish of Collaborative Safety

# Rulemaking



In order to achieve collaborative safety, it is important to meet the requirements set forth in international standards and other relevant rules in each category of technology, human resources and management. The development of international standards for collaborative safety is in progress in international standards organizations such as ISO and IEC. An IEC white paper titled "Safety in the Future" will be developed by the Market Strategy Board (MSB) of IEC and planned to be published at the IEC General Meeting in October 2020. In addition, the Institute of Global Safety Promotion (IGSAP) evaluates products and systems that are designed to be in conformity with the technical requirements of Safety2.0 to verify their compliance, and issues a permission to use a certificate mark after successful verification.

As the Vision Zero campaign advocates, for the purpose of achieving safety in the workplace, it is necessary for companies and organizations to invest in safety systems and equipment as well as safety-related personnel under the strong leadership of top management executives. According to one study, the long-term return on investment for safety is 2 to 2.7. Safety is an investment, not a cost. ISO 45001 (Occupational Health and Safety Management Systems), published in 2018, also requires top management's leadership commitment to occupational health and safety.



# Management