

## SIAS Abstract

### **Holistic Approach to build the Global Platform of Collaborative Safety based on the Wellbeing Technology**

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Human-centered smart society is currently a global concern aiming at the universal and eternal concept of peoples “safety, health and wellbeing”. When we look at the manufacturing industry sector that has been contributing largely the Japanese national economy, the reduction and limitation of workforce has recently become serious problem due to aged society, and the industry is making every effort to maintain high efficiency and productivity by introducing emerging technologies such as robotics and ICTs in place of workers. On the other hand, the current safety measures with reference to the international machine safety standards published by ISO and IEC focus mainly on the hardware-oriented physical safety without consideration of human’s psychological aspects leading to “ANSHIN” that is Japanese expression and is generally understood as the feeling of freedom from threat against possible hazard under the working environment of human-machine coexistence.

“Collaborative Safety” is the new concept that the preventive measures to the potential safety hazards caused by the human access to or from the moving machine and guide to safe situation by way of real time exchange of the risk related information among human, machine, and their working environment, utilizing the advanced ICT such as AI and IoT. In other words, collaborative safety is to establish “friendship” relationship between human and machines so that human can gain the feeling of ANSHIN. This concept is understood as the core element of “Wellbeing Technology” that is the safety technology providing the workers with not only safety and health but also wellbeing as an ultimate goal.

In order to build the collaborative safety platform at workplace, technical measures of system level are essential but at the same time personnel competence to justify the correct installations/integrations and operations, their overall management to maintain sustainably the system operations, and finally their common rule making by way of international standardizations of both technical standard and its conformity assessment to be used as a tool/reference for overall industries on a global basis to contribute UN SDGs, especially Goal 3 and 8. We call this idea as holistic approach to build the collaborative safety platform and we IGSAP is taking a leadership to develop our private standard and conformity assessment program, and in parallel, to implement them on-site in manufacturing, civil engineering and construction industry sectors which are expecting to minimize any hazardous event for their employees and to work with positive motivations without feeling any stress and threat of safety hazard by employing advanced safety technology.

The paper outlines the progress of international standardization of our holistic approach to build the global platform of collaborative safety in the organizations since we started some years ago, in terms of the following elements;

1) Safety 2.0 technology

Safety 2.0 is our unique term of technical aspects in collaborative safety and Safety 2.0 standard developed by IGSAP has been improved in accordance with our on-site experiences of Safety2.0 conformity assessment activities to implement the standard. Especially our focal points for the improvement are, whether the system level risk assessment covers sufficiently, and whether efficiency and productivity are still secured by the safety measures introduced. The principle of the standard is proposed to the IEC ACOS (Advisory Committee on Safety) to develop IEC Guide on collaborative safety.

2) Personnel competence

By the leadership of Japan, new conformity assessment program called CoPC (Certification of Personnel Competence) program was introduced in IECEE dealing the CB Scheme, with reference to the Japanese Safety Assessor program on machine safety. This is currently the initial stage and planned to be expanded

to the CoPC program on collaborative safety in the near future.

### 3) Management system

We are in process of consultation with the parties concerned how the collaborative safety management system is integrated in the relevant part of the existing ISO45001 OHSMS to include how to measure and verify the “wellbeing” gained by the employees as a result of the introduction of collaborative safety in the organizations.

### 4) Promotion and partnership

It is crucially important for the international standardization activities to make friends as many as possible who agree and support our proposals. For this purpose IGSAP is actively involved in a number of national and international events to promote collaborative safety and establish the partnership with the relevant national and international organizations.