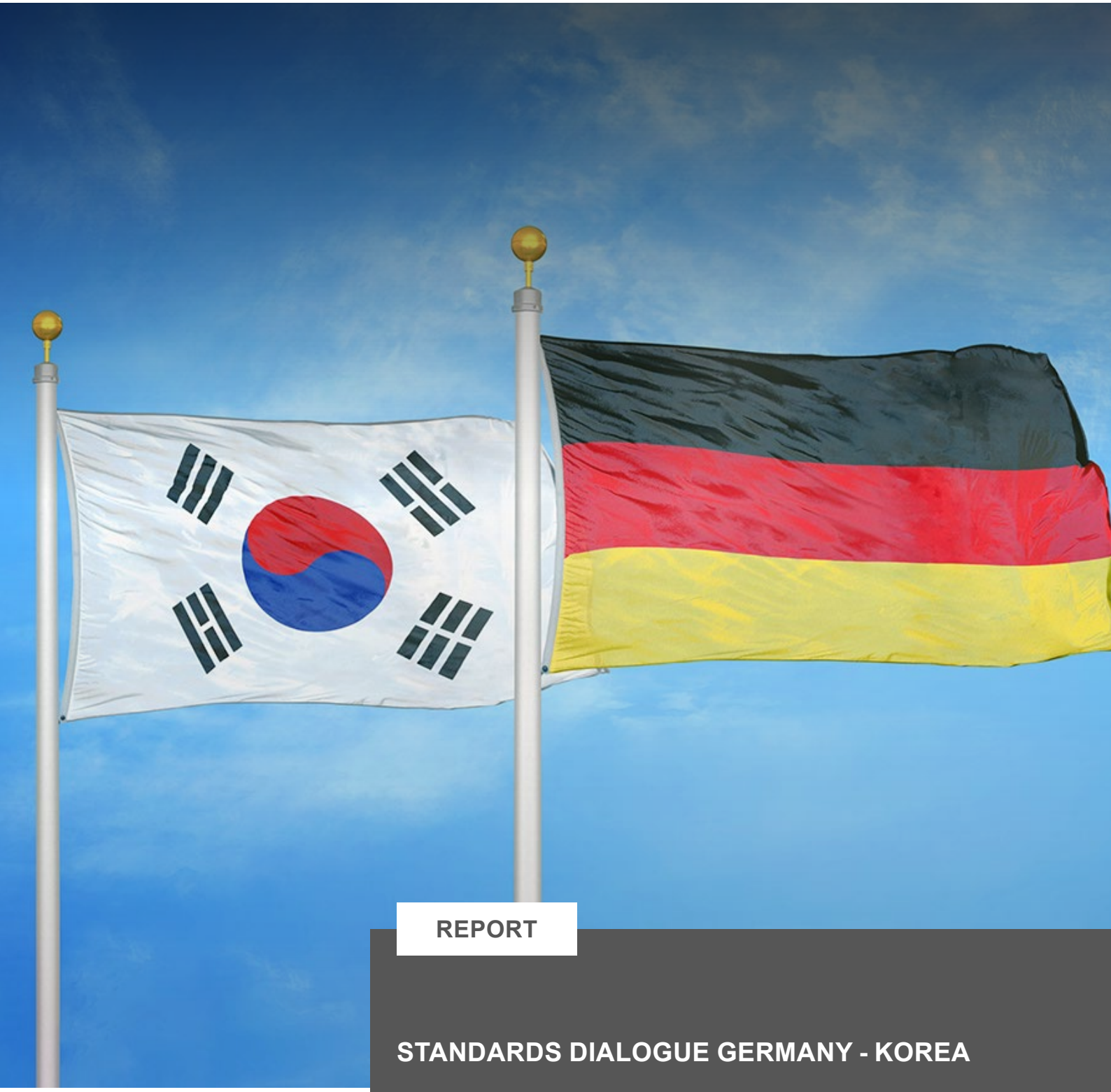
KATS Korean Agency for Technology and Standards

DIN DKE KSA



REPORT

# STANDARDS DIALOGUE GERMANY - KOREA

# STANDARDS DIALOGUE (S-DIALOGUE) GERMANY - KOREA MEETING IN FRANKFURT ON 7 DECEMBER 2023

## Introduction

The German-Korean Standards Dialogue (S-Dialogue) took place in Frankfurt am Main, Germany on 7 December 2023. The S-Dialogue is organized by the four standardization organizations DKE, DIN, KATS and KSA. This dialogue aims to strengthen the standardization cooperation between South Korea and Germany. In several sessions both, strategic and technical issues were explored by the leaders from all four standardization organizations as well as technical experts from industry.

The S-Dialogue was hosted by DKE and DIN in the Maritim Hotel in Frankfurt, Germany, and moderated by Christian Marian (DKE). DKE board member, Florian Spiteller, gave the introduction words, followed by Mr. Chongwook Chin, Administrator of KATS. On behalf of DIN, Dr. Michael Stephan, DIN Management Board Member and Chief Operations Officer, Standardization Division, gave the welcoming remarks. This was followed by Mr. Myungsoo Kang, CEO and Chairman of KSA.

The event focused on five topics that play a crucial role in both countries. It started in the morning with the topic SMART Standards, followed by Climate Change and E-Mobility. In the afternoon two breakout sessions were organized, one on Smart Manufacturing and the other one on Battery.

## SMART Standards

The SMART Standards Session was moderated by Florian Spiteller from DKE. This session started with three keynote speeches. The first keynote speech was held by Damian Czarny, Head of Digitalization at DKE and member of IDiS – the German Initiative for Digital Standards. He first highlighted the importance and key aspects of SMART standards and their potential impacts for the future industry, followed by an overview of achieved milestones at ISO and IEC. He pointed out that a first important pilot phase has been completed by IEC and that the further roadmap will be decided in early 2024. Good prioritization will be the key to success and all National Committees (NCs) should be involved in choosing the right focus. Then he explained the goals and results of the German initiative for Digital Standards (IDiS). In the end he highlighted the importance of the industry and real use cases that are needed to advance.

The second keynote speech was given by Jaeho Lee, Professor at University of Seoul. In the beginning he raised the difference between Digitization, Digitalization and Digital Transformation. While Digitization focuses on data conversion, Digitalization is about improving processes and Digital Transformation is leveraging technology for a total organizational overhaul. A key aspect for the digitalization for standards is the online environment for standards development which will be executed by the ISO IEC Online standards development platform (OSD). In addition, Professor Lee sets the focus on Artificial Intelligence (AI) technologies to create, curate and optimize digital content.

The third keynote speaker was Ms. Kyunghee Han from KSA. She explained the several stages of SMART Standards and also mentioned that KS Documents (Korean Standards) are about to become “smart”. Currently KS Documents are digital documents (Level 1); the next step is to make them machine-readable documents (Level 2). She addressed the planned steps, how AI technologies can help, and the challenges Korea faces in achieving SMART standards. The first use cases for SMART standards in Korea are to enable a detailed search and the use of chatbots for services to the public.

These three keynotes were followed by an open discussion. The audience added valuable information to this future topic and concluded that industry use cases are crucial to make SMART standards beneficial for future use. Another conclusion is that the technology behind SMART standards should rather be developed together at international level than every National Committee coming up with their own solution. In addition, South Korea would also like to explore whether it might be beneficial to establish its own national stakeholder group such as IDiS in Germany.

## Climate Change – Carbon Neutrality

This session was moderated by Jeongjoon Lee (LS Electric). Two keynote speeches were presented on this topic by Daniel Weiss (phiyond by adelphi) and by Chunyoul Baek (KATS).

Daniel Weiss pointed out in his speech that carbon neutrality is currently omnipresent as a topic. He referred to the COP28 climate conference that was taking place in Dubai at the same time and to the many aspects and challenges that relate to this topic. A rapid decarbonisation is needed to limit global warming to 1,5° C. The share of industry-related emissions in Germany in 2021 amounted to approx. 24 %.  This means that climate action targets can only be achieved with industry.

Daniel further explained that “climate or CO2 neutrality” is a widely used claim in brand communication. However, there are many legal uncertainties as to how this term is to be used.

The European Commission has put forward a proposal for a directive on green claims. This directive is intended to provide an instrument against greenwashing.

Indeed, there is a great lack of clarity in many companies as to how climate neutrality can be achieved and what steps are necessary to reach this goal. Undoubtedly, a stronger commitment is needed. And what is the role and value of standards in this context? In fact, standards can make an important contribution to respond to climate change impacts. ISO 14068-1:2023 Climate change management – Transition to net zero, Part 1: Carbon neutrality has recently been published. This document specifies principles, requirements, and guidance for achieving and demonstrating carbon neutrality through the quantification, reduction and offsetting of the carbon footprint. It defines terms used in relation to carbon neutrality and provides guidance on the actions necessary to achieve and demonstrate carbon neutrality.

There is no question that major investments by industry are needed for achieving progress.

In the second keynote speech, Chunyoul Baek (KATS) explained that in Korea the Carbon Neutrality Standardization Strategy is currently being revised. The aim is to realize carbon neutrality in 2050 by active standardization on carbon neutrality.

In this context it is essential to develop key national standards, correspond to key global standards, and develop key certification items.  As energy is a core contribution sector of Carbon Neutrality, the issue of conversion of energy supply is crucial. Each industry sector in Korea seeks new technologies for decarbonization of material, energy, and process emission reduction. Another important aspect in this context is the establishment of a circular system for resource recycling that will make an important contribution to carbon neutrality.

In particular, Chunyoul pointed out the importance of standards in the field of carbon neutrality. In global carbon neutrality issues, standards are the important role as implementation measures for detailed tools such as carbon footprint certification, ESPR, and battery regulations. In the future, the standards (such as product category rule for carbon footprint, digitalization of carbon footprint for DPP (Digital Product Pass)) will continue to be developed. Accordingly, he emphasized that cooperation between Germany and Korea is necessary and important for the development of relevant standards.

In the discussion that followed, two major topics were addressed that will play an increasingly essential  role in the future: The Digital Product Pass (DPP) which has a top priority in Europe, and which  will help to create transparency by sharing product information across the entire value chains. The other big topic is the vision of the All Electric and Connected Society that strives to create sustainable and resilient conditions for everyone.

There was common agreement that the credibility of databases is a crucial topic when it comes to achieve the goal of carbon neutrality. Standards can provide support to obtain precise data and develop action plans.

## E-Mobility

The E-Mobility session was moderated by Christian Marian, DKE. The first keynote speech was presented by Mr. Mario Beier, DIN (Head of DIN Mobility Office and Head of Group Research and Transfer). Mario Beier provided an overview of topics currently being discussed in Germany in the context of e-mobility as well as on the organizational standardization framework to address these topics on national, European and international level.

Furthermore, he introduced the publicly funded project “ELSTA”, which aims to strengthen the national position in the field of electromobility by means of standardization (funded by Federal Ministry of Economic Affairs and Climate Action - BMWK). This is achieved, among other things, by promoting bilateral collaboration or through targeted support of specific topics to further develop the recognized standards.

Topics such as decarbonization, smart car or standardization are currently the focus of the BMWK-led body of experts „Transformation of the automotive industry“, which operates alongside other experts, with the involvement of DIN, DKE and the automotive standards committee (led by VDA). Within the standardization ad hoc-group the experts are preparing for example papers on bi-directional charging and the digital product passport.

Mario Beier closed his speech with an appreciation of the good collaboration between Korean and German experts in IEC TC23 SC23H regarding the Megawatt Charging System.

In the second keynote speech Mr. Changsu Hahn (KATECH - Korea Automotive Technology Institute) provided an overview of the structure of EV-related technical committees on international standardization level and the relevant standards developed by ISO and IEC. In that context he visualized the way Korea is organizing the expert dialogues on national level. One result of these dialogues was the development of the Korean Electric Vehicle Standardization Roadmap that was published in November 2023 and will be updated annually.

Also, Mr. Changsu Hahn highlighted the existence of several EV technology platforms, the use and development of different charging technologies, e.g. High power and Megawatt charging, wireless charging, robot charging or the use of pantographs. Beyond, he referred to the respective communication technologies that are required to enable the connection of the vehicle with the grid.

The last part of the presentation focused on the core of the EV, the battery. The overview given comprised the testing of batteries, the current state of the development of all-solid-state batteries, the reuse of batteries and which standards, among others, apply within the entire value chain to enable reuse and finally swappable batteries for light electric vehicles.

## Break-out session 1 – Smart Manufacturing

The break-out session for Smart Manufacturing was moderated by Donghag CHOI from Kumoh National Institute of Technology and Jens Gayko, managing director Standardization Council I4.0. The first keynote speech was held by Prof. Dr. Ulrich Loewen from Siemens AG. Prof. Dr. Ulrich Loewen’s presentation revolved around the crucial role of the Asset Administration Shell (AAS) for Smart Manufacturing. He extensively covered Germany’s previous and ongoing work of IEC TC65 WG24 on the AAS for Industrial Applications, aligning it with the Platform Industry 4.0 framework. Loewen discussed the evolution of Smart Manufacturing, highlighting the current trends in standardization, while underscoring the added benefits to manufacturers when implementing the AAS. He emphasized the need for developing added value propositions to incentivize manufacturers to overcome operational challenges and to make the essential investments required from part suppliers and software providers to ensure an effective AAS adoption. Furthermore, he highlighted the necessity of other aspects such as refining semantic structures and addressing data ownership for the successful future utilization of the Asset Administration Shell.

In the second keynote speech, Professor Donghak Choi offered insights into Smart Manufacturing standards within Korea. His presentation showcased various reference models from Germany and the United States, drawing parallels to the Korean context, particularly in relation to Platform Industry 4.0. He elaborated on Korean initiatives such as Smart Factory projects like KS X 9001-1. He shed light on the barriers hindering the recognition and application of standards within Korean manufacturing firms. Moreover, Prof. Choi provided an overview of strategic standards developed by Korean government bodies and detailed the efforts led by KRISS in the Smart Manufacturing Standard Research Group, emphasizing the presentation of key standards. He concluded by suggesting strategies to enhance the application and utilization of standards within the Korean manufacturing landscape.

Both presentations emphasized the dynamic nature of Smart Manufacturing standards and the ongoing endeavors in Germany and Korea to advance and integrate these standards within their respective industrial ecosystems.

The discussions centered around the historical and current trends in smart manufacturing standards. The primary goal was to strategize approaches that could facilitate a wider adoption of these standards among small and medium-sized enterprises. Participants particularly focused on seeking common use cases and fostering collaborative initiatives integrating Artificial Intelligence (AI) into manufacturing projects between two the countries.

## Break-out session 2 – Battery

The break-out session for battery was moderated by Jaekeun Kim from KTC. It commenced with two keynote speeches, fostering discussions among experts from South Korea and Germany. The first keynote speech, led by Thomas Timke representing SolarWatt, centered on the theme: “EU Battery Regulation and Stationary Storage.” His presentation highlighted the EU Battery Regulation’s schedules and test plans (ESS) applicable to all EU-distributed batteries: industrial, portable (e.g., smartphones), EVs, and Light Means of Transport (LMT). The timeline discussed spans 2024 to 2036, emphasizing detailed test items for Article.12 of the batteries regulation, addressing ignition and explosion risks through assessments like internal short circuit, high-temperature, thermal runaway, combustion, and harmful gas emission testing. Timke’s insights shed light on the evolving battery standards and challenges within the EU.

The second keynote speech was delivered by Jung Jaebeom of KTL, focusing on the “Software Testing Method in Korea Certification for Repurposed Batteries.” Key points included the adoption of KC 10031 as a mandatory standard for recycling batteries in Korea, covering all batteries for reuse, including software testing methods. The software testing method relies on battery data, incorporating channels like OBD (On-board Diagnostics). Data integrity is confirmed through product testing preceding the software method. Periodic verification occurs at specified intervals. While traditional tests take longer, the software method aims for faster, non-destructive testing to facilitate safe reuse.

The discussions primarily centered on mutual verification in the reused battery field, establishing cooperative data-sharing systems, planning joint technical seminars, and coordinating international standardization efforts for software testing methods.

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