

World Standards Day: From Climate Protection to AI – How Standards build trust

Berlin, 10 October 2023. On World Standards Day, the benefits of standardization are celebrated every year on October 14. Because one thing is clear: Standards make life easier. They make it possible for bank cards to fit into the slots provided or the copy paper into printers all over the world. Most people don't notice standards too much in their everyday lives – because almost everything fits together and functions smoothly. In the background, however, they ensure that the world is as comfortable and safe as we know it. They define requirements for products, services or processes and thus ensure, for example, that our drinking water is hygienically safe for children and adults.

Standards drive the transformation

More than 250 years ago, technical standards already helped the industrial revolution achieve a breakthrough and eased the transition from manual labor to machine production in factories. With the digital and green transformation, similarly large tasks lie ahead of us today. In order to be able to produce in a CO₂-neutral manner in the future and take advantage of the opportunities offered by digitization, new technologies and business models are currently being developed and new markets are emerging. To ensure for these to function smoothly, uniform rules are needed that promote cooperation internationally. Good to know: there are already numerous standards that support the digital and green transformation of the economy. Here are a few examples:

Achieving environmental goals: The international standard **DIN EN ISO 14001** specifies requirements for an environmental management system that organizations can use to improve their environmental performance, meet legal and other obligations, and achieve environmental goals. Worldwide, around 300,000 companies and organizations of all sizes and from all sectors – from small service providers to large industrial companies and government agencies – are certified to ISO 14001.

Sustainable raw material cycle: The circular economy helps to reuse raw materials. The international standard **DIN EN IEC 62430 (VDE 0042-2)** provides valuable knowledge for implementing circular economy strategies in the design and production process of products. This standard provides companies that want to design their products in an environmentally conscious manner with a guideline for structuring their processes and products.

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Installing a heat pump correctly: How will we heat in the future? Heat pumps are among the energy systems that are popular today and will be in the future. To ensure that systems in single-family and multi-family homes are planned correctly, there is **VDI 4645**, which provides guidance on the necessary steps from preliminary investigation and concept development to detailed planning.

Power-to-X hydrogen generation: Hydrogen (H₂) is one of the sustainable energy sources of tomorrow. The generation of hydrogen is covered with in the guideline series **VDI 4635** "Power-to-X". Behind this is the VDI-Society for Energy and Environment (GEU). Power-to-X means the conversion and storage of electrical energy in an energy carrier (gas, power or raw material), heat (power-to-heat) or a product (basic material). The series of guidelines creates a uniform system for comparability regarding measurement and verification methods or the specification and designation of system parameters.

Driving electrically: Automotive manufacturers are driving forward the development of fully or partially electrically powered vehicles. To charge the batteries of such vehicles, a suitable charging infrastructure is required. To this end, the vehicle, charging station and power grid must interact optimally. The **DIN EN ISO 15118** series of standards helps implement the communication interface required for this.

Trustworthy AI: What is artificial intelligence allowed to do and who will make important decisions in the future – these are central questions in the current discussion about AI development. Answers have recently been provided by the VDE application rule **VDE-AR-E 2842-61** as the first framework for the complete life cycle of cognitive systems.

Using AI in medicine: Image analysis plays an important role in many areas of medicine, for example to distinguish tumor tissue from healthy tissue. Deep learning image recognition systems automate this process and thus improve quality and efficiency. **DIN SPEC 13288** formulates practical guidelines for the development and design of the systems, addressing the handling of training data and thus ensuring confidence in the application of AI in the medical field.

Climate-friendly dishwashing: There are many ways to use less electricity and water with a dishwasher. Don't prewash, choose an eco program instead of a short program, buy efficient appliances in the right size, and look for the EU energy label – measured according to **DIN EN 60436 (VDE 0705-436)**. Incidentally, a 2021 study by the University of Bonn on dishwashing behavior by European consumers found that

dishwashers save an average of 50 percent of water – and 28 percent of electricity – compared with washing dishes by hand.

Clean drinking water: Climate change is leading to water losses in Germany – with consequences for drinking water as well. The aim of **VDI 6023** is to preserve the perfect quality of drinking water in drinking water installations. This requires an understanding among all partners responsible for planning, construction, operation and maintenance.

Standardization is teamwork

These technical rules are developed by experts from business, science, the public sector and civil society. Together, they decide which standards are necessary and what they should contain. Technical rule makers such as DIN, DKE and VDI manage the process of drafting and publication. By the way, it is very easy to participate. All parties interested in a topic are given the opportunity to participate and contribute their expertise. Before adoption, the draft standards are made public and put up for discussion. Together with the experts, the rule makers ensure that the standards are always state of the art.
