THE POWER OF STANDARDIZATION

DKE
VDE DIN

German Commission for
Electrical, Electronic & Information
Technologies of DIN and VDE

THE POWER OF STANDARDIZATION

There are many powers influencing our daily lives. Human life on this planet would be unimaginable without the gravitational force of the earth, the energy of the sun, or the power of our own ideas. Forces can accelerate, bring about change and release energy. However, force or power is an invisible quantity – what we perceive is not power itself, but rather its effects.

The same can be said for the power of standardization – it changes our lives. Standardization accelerates business processes, creates safety and suffuses innovations with additional energy. Yet all too often, this power remains invisible.

The DKE is the German competence centre for standardization for electrotechnology, electronics and information technology. More than 3,500 people work together here to devise standards and specifications that will make products safer, strengthen the German economy, ease the burden on the national government and improve the lives of each and every individual. These are the visible effects of the power of standardization.

Dialogue. Competence. Commitment.

DKE

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Foreword

The power of standardization

In our globalized world, the only constant we can expect to encounter each and every day is the constant of change. Change leads to new regional and technological impetus, such as that provided by the BRIC countries (Brazil, Russia, India and China). These countries are attracting investors on the strength of their enormous potential for growth and making it clear how they view current world economic power structures, for example, through their protection of raw material sources.

Change is also leading to a dissolution of the classical segmentation of sectors such as the automobile, energy, mechanical engineering and information technology industries. In their interdependence lies the key to the design of our industrial future – in terms of both efficiency and sustainability. Understanding these changes as challenges involves a forceful bundling of competence and expertise to lend validity to technical know-how internationally as well as domestically. The ideal partner in this enterprise is DKE, the German Commission for Electrical, Electronic & Information Technologies of DIN and VDE, as it brings together the leading national experts from the business community, research and development, science, trade associations, government agencies and other relevant organizations. On this basis, it represents German interests in the work of developing European and international standards.

Commitment is the central building block required to bring validity and acceptance for German technologies worldwide. Which is why I cordially encourage your powerful support for the work of the DKE.

Dietmar Harting
President of the DKE

DEVELOPING A POWER-FUL IMPACT

Working together to secure more progress

Unambiguous rules and clear definitions are a source of security. In particular, trust and reliability will prevail if these rules are decided by all interested parties working democratically and in a spirit of consensus. Electrotechnical standardization offers a solid foundation of this kind, enabling businesses to build innovations and market them successfully worldwide, providing consumers with a reliable partner when purchasing and using electrical and electronic products, and easing the burdens upon national governments through self-regulation. The DKE gathers expertise from all the relevant fields, develops efficient structures and offers reliable services as it works towards rules that reflect the latest technologies, adapt to the market and enjoy wide recognition. For the benefit of us all.

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Benefits to Society, Business and the State

Standardization benefits us all. Without fail.

Electrical and electronic products should make our lives easier, better and more pleasant. Computers, for instance, help us archive and organize knowledge. Mobile telephones have transformed the way we communicate. With wind power plants, we can generate the clean electricity we will soon need to propel emission-free electric cars. New ultrasound equipment permits better medical diagnoses. Modern building technology enables independent living for the elderly. And, last but not least, an MP3 player makes jogging considerably more entertaining.

Yet every piece of technical equipment can also be a source of risks – risks that the user is often unaware of. Eliminating or minimizing these risks is an objective for us all. At the DKE, top priority is given to human safety in the production and use of electrical and electronic products and also in the generation, distribution and use of electrical energy. Technical competence and the extensive experience of the DKE constitute the fundamental basis for the articulation of safety requirements.

Trust – the basis of innovations

A binding test of the consumer safety and environmental sustainability of products can be carried out only on the basis of standards that are widely recognized and that reflect the current state of technology. This gives the consumer and user confidence about the degree of safety and quality of a product. This is the only way that rapid technological progress can be of benefit to entire societies. Because an absence of faith in products, services and new technologies would make rapid introduction of innovations utterly unthinkable. This is how the standardization process also benefits industry: It lays the groundwork for acceptance of technology and openness to innovation within the populace – qualities a company could never generate on its own.

Consensus as a competitive advantage

At the DKE, everyone gathers round the same table. The interests of consumers and users

are represented, along with the interests of manufacturers, service providers, and suppliers as well as the fields of science, regulatory agencies and other state authorities. Our objective is to utilize this dialogue among experts to define rules that are widely recognized, market-oriented and technologically up-to-date.

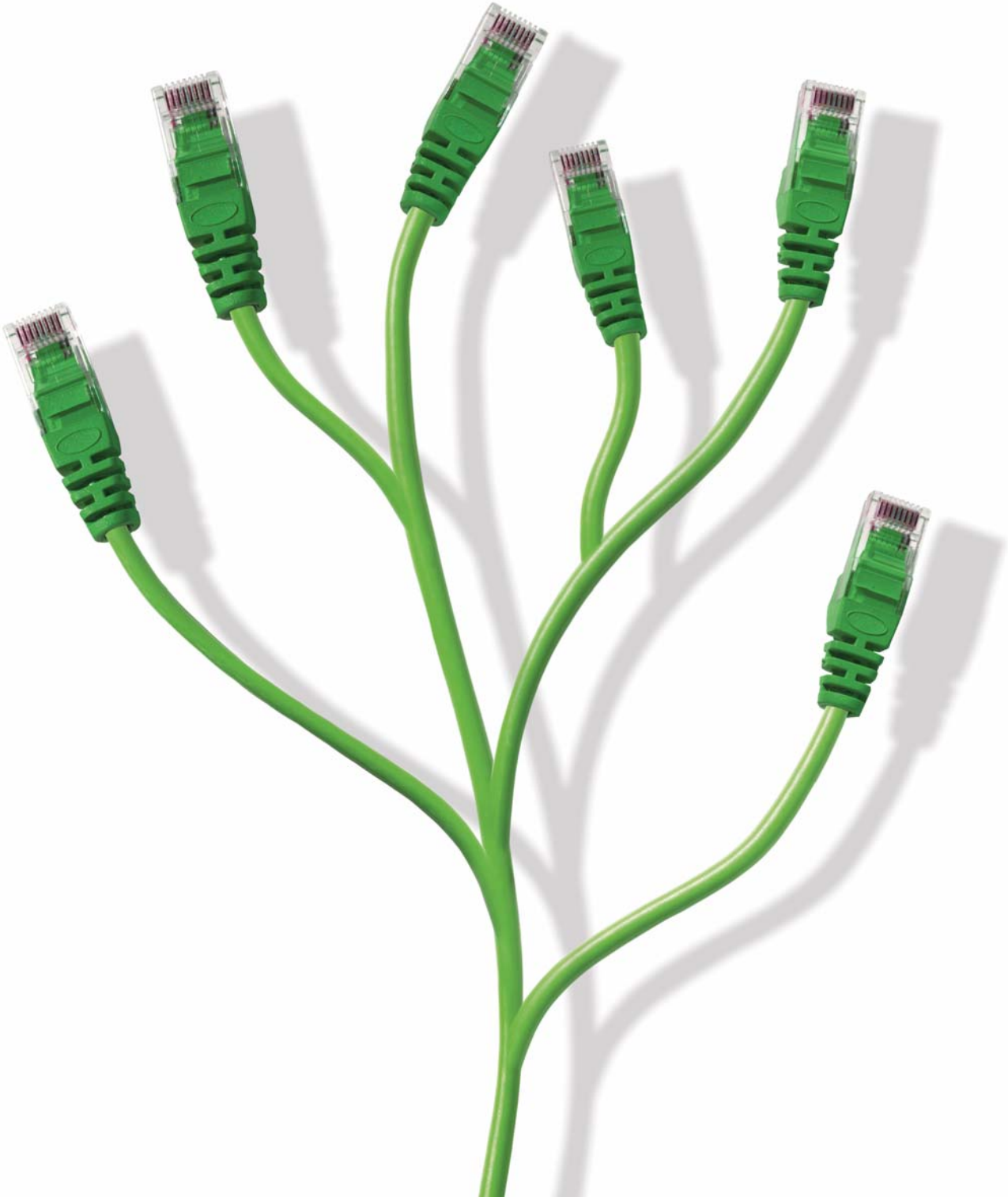
The DKE facilitates this process through an efficient organization, extensive services, and ultimately through codification of the results of the process in binding standards and specifications. Even when some of the discussions prove arduous, in the end they pay off for all concerned. Consumers get better and safer products, while companies can take knowledge gained in the course of this process into account when developing and optimizing the goods and services they provide. This superior expertise pays off not least in the form of a competitive advantage for each individual company and for Germany as a business location.

Standards – paving the way to the global market

Yet the business benefits of standardization extend far beyond the knowledge gained in dialogue. For shared standards, which DKE represents at the European and international levels as well, also enormously broaden the scope of alternatives available to businesses. They open the doors to a broader range of suppliers as compatibility among systems is enhanced and new forms of teamwork are fostered. They ease and accelerate the development of new markets by reducing regional barriers to trade and regulations of a national hue. In this way, innovations can gain acceptance worldwide in shorter cycles, while investments in research and development pay for themselves sooner.

Social responsibility through relief of national governments

By participating in standardization, the groups involved can assert their own interests while at the same time demonstrating an awareness of their social responsibility. Self-regulation eases the burden on national governments and reduces outlays of funds generated through taxation. In this way, legislation can refer to standards that reflect the current state of technology and a consensus among the parties affected, while obviating the need for national governments to go to the effort and expense of generating these standards on their own. All of these factors demonstrate just how multifaceted the power of standardization truly is. The macroeconomic benefits of standardization for Germany can be summed up in an impressive statistic featured in a study by the DIN: EUR 16 billion annually.



STRENGTHEN ECONOMIC POWER

Communication for innovation and growth

An innovation rarely arises in isolation. New technological developments often arise out of an interplay of many intelligent and creative individual ideas that develop their full potential only when considered as a whole. Standardization promotes dialogue between the various technological disciplines and among a broad array of interest groups at national and international levels. This accelerates the development of innovations and facilitates their implementation.

The DKE offers a platform for discussion, for the creation of consensus and for democratic decision-making processes. In this way, it provides a clearinghouse for the development of generally accepted electrotechnical standards and specifications. For healthy growth and speedy utilization of innovations for all humankind.

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Good ideas are far from being a scarce commodity in Germany. In all areas of the business community, the university landscape and research institutions, outstanding ideas for the improvement of products and systems, for significant basic technologies, and for improvements in our living environment are coming to light all the time – from nanotechnology to environmental protection. In and of itself, though, a stellar idea is no guarantee for an economically successful, market- and needs-based product realization. Success requires strong partners and suitable implementation strategies: standardization is a strategy that creates partnerships and fosters market introduction. The DKE offers the right platform for this.

DKE – representing Germany as a centre of technology

The DKE is the platform where all interested groups can bundle and strengthen German interests in the work of electrotechnical standardization. It offers market participants in the business community, politics and science a universal network for the electrotechnology sector. Manufacturers, retailers, consumers, the trades, service providers, the sciences, technology monitoring bodies and national governments all define the state of technology and codify it, duly mindful of the latest findings and with an appropriate eye for objectives that are both sensible and feasible. This is how, with each result of the DKE's work, it also produces an objective and current reflection of Germany as a centre of technology. This provides orientation to all of the forces active in the market while outwardly manifesting the current state of discussions in the particular field involved. Serving as an interface to all levels of international and European electrotechnical standardization, the DKE promotes this communication.

Through competence and commitment on the part of its technical experts, and with the support of modern electronic tools, the DKE ensures consensus-oriented dialogue dedicated to a common objective: accelerating the exchange of information and knowledge while ensuring efficient, professional standardization management.

Platform for Dialogue and Consensus

Formal standardization and standards or specifications developed outside the formal process facilitate the transfer of information across a very broad array of areas, while at the same time creating a basis for high-quality implementation of innovative ideas in the form of market-oriented products.

Optimum framework conditions for efficient standardization

An ongoing exchange of information and knowledge among partners through the DKE platform provides the basis for successful migration of new technologies and assertion of the partners' own innovation strategies.

The DKE offers a wide variety of instruments for efficient process management. It provides the technical experts with a communications platform, the 'DKE Electronic Committee', with functions such as document and content management, web portal and web conferencing for virtual meetings. There are also conference rooms equipped with WLAN Internet access and modern presentation media. Advances in virtualization of the standardization process also promote efficiency and user-friendliness. Accordingly, users can access the DIN-VDE drafts portal online to comment on draft standards or submit suggested amendments or supplements. This simplifies and speeds up the entire process, for those submitting comments as well as within the respective bodies of the DKE. Regular exchanges of information (via newsletter, continually growing knowledge databases, tailored training programmes or frequent face-to-face conversations) complete the array of services offered by the DKE and provide individual assistance to everyone involved, helping to achieve the goal of an efficient work process.

Promoting interdisciplinary and cross-border dialogue

Viewed as an exchange that is fruitful and imparts knowledge, discourse is a basis for the successful work of the DKE. The exchange is interdisciplinary and involves science, con-

sumers, the national government and the business community.

This exchange takes place on a daily basis through the work of the standardization bodies and in the working groups on specifications, but also within a larger framework, such as at the annual DKE Conference, where outstanding speakers provide information about new developments, and where participants are also given sufficient space for an informal exchange of views.

As participants in bodies at the European and international levels, the German delegates not only represent German interests but also work to improve communication and mutual understanding across national boundaries.

Democracy and consensus: values basic to the process of standardization

Standardization is a voluntary process through which consensus is achieved among all participant interest groups, working together democratically, openly and transparently. It is precisely in this openness that the strengths of the standardization process can be found – after all, the objective is not over-regulation but rather the development of shared rules where these seem sensible to all involved. Accordingly, the balanced interplay of all of the market forces in the DKE is a factor essential to developing objectives for standardization that are necessary and useful, while at the same time preventing restrictive codifications of technology and allowing participants to pursue their own innovation strategies.

This is how transparency and shared values also permit reduction of national regulations, thanks to an efficient and functioning self-regulation on the part of the whole business community. The result: standards and specifications that generate added value for all parties concerned.

Diverse interests – shared objectives

As diverse as the interests of the participants may be, through their work within the DKE they

Platform for Dialogue and Consensus

are committed to fulfilling the shared objectivs of the DKE within the framework of their fundamental social mission:

Safety
Overall safety of electrotechnical products and installations; and their related services, and labour protection

Compatibility
System compatibility of products and installations in networked systems and applications

Market orientation
Accelerated diffusion of new technologies on the market by supporting information processes via standards and specifications

Consensus building
Bringing together the knowledge and the interests of all associated parties, building consensus around controversial technical issues

Representation of interests
Representation of German interests in the development of International and European standards, in order to eliminate obstacles to trade and to open markets worldwide

Quality
Maintaining a high level of technical rules in a consistent portfolio of standards oriented towards market and consumer requirements

Conformity assessment
Worldwide acknowledgment of conformity assessment results

MORE INNOVATIVE POWER

Expertise helping Germany's strong global position

No company is exempt from either the opportunities or the risks of international markets. Standardization strengthens the German economy's ability to confront the challenges associated with worldwide R&D, international production facilities, foreign suppliers and competitors from all over the world.

As well as paving the way to new markets, standardization also offers a way to guarantee German, European and international safety standards for the benefit of the environment and all humankind.

The DKE is the German competence centre for electrotechnical standardization. As partner to the national government, service provider to the business community and champion of the consumer, it provides the infrastructure needed to efficiently develop a modern and technologically advanced world by actively shaping the process of globalization in a positive way.

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The DKE was established in 1970 by DIN and the VDE. It constitutes a joint organization of DIN and the VDE, which is responsible for the daily operations of the DKE. The results of its work are published as part of the German standards collection and of the VDE Specification Code of safety standards.

In Germany, the DKE is the most important authority in the area of electrotechnical standardization. This fact is also recognized at the federal level in the Standards Agreement made in 1975 between DIN and the Federal Republic of Germany. Hence, there is practically no standard in the area of electrotechnology that can be instituted without the participation of the DKE.

Within Germany and particularly at the European level, the work of the DKE eases the burden on the national government which, when new legislation is passed, can refer to standards already in place rather than develop and specify the technical requirements themselves.

Nonetheless, the DKE is completely independent of state sponsorship and subsidies. 95 percent of the budget of the DKE business organization is financed through the proceeds of the sale of standards (via the VDE Verlag and Beuth Verlag).

The gateway to the world – and the key to new markets

Thanks to the outstanding position of the DKE within Germany, it has also been exclusively entrusted with representing German interests in European and international standardization work, as well as the mission of integrating these standards, in turn, within the German standards collection.

Especially in the export-dominated sector of electrotechnology, Germany has a particular interest in implementing rules that promote innovation across national borders rather than unilaterally. The DKE takes this requirement into account through its active participation in standardization bodies within the International Electrotechnical Commission (IEC) and within

the European standardization organizations (CENELEC and ETSI). Thus, German interests are represented in all areas by sending a large contingent of delegates and by occupying positions of leadership within international bodies and working groups.

This is how the power of standardization can also play a meaningful role in shaping globalization as it advances, for in equal measure it paves the way for new sales markets, simplifies collaboration between suppliers and their customers throughout the world, and at the same time boosts international safety standards for the benefit of the environment and all humankind.

Quality as standard – for new services as well

Standardization is as much a matter of diversity as the electrotechnical products and systems to which it applies. To satisfy these requirements, the DKE has a broad palette of solutions available: these range from informative technical reports to technical specifications to consensus-based safety standards.

The DKE guarantees high-quality results for all of its services by involving experts for each respective topic, clearly defining and testing processes, and organizing public discussions to promote consensus. The same holds true for new forms, such as the VDE application guides, which represent a form of publication that is quick to realize and therefore particularly suitable for projects in very dynamic markets.

From application to standard

The development of a standard is generally defined through the Working Procedure for Standardization (DIN 820-4), but variations in detail are permissible, depending on the type of standard and the issuing organization. For this reason, the process is only sketched in its broad outlines here:

1. Proposal for standards work

Anyone may submit a proposal for initiation of standards work. The competent standards body – for the field of electrical engineering, this is the DKE – decides whether to accept or reject the proposal for standards work. If the proposal is accepted, the working title of the proposed standards project is published in the DIN Gazette of Technical Rules. Various avenues of appeal are available, either in opposition to initiation of a new standards project, or in the event a proposed standards project is rejected.

2. Handling from the draft proposal to the draft standard

Prior to finalization, the proposed version of a standard is published as a draft standard and submitted to the public for comment. This is based either on a text furnished by the party proposing the standard, or on the basis of an initial draft proposal prepared by a team of experts working with the party proposing the standard.

The vast majority of draft standards result from international or European standards proposed for inclusion in the German standards collection. The DKE sees to it that the draft standard is prepared in conformity with the applicable rules for standards.

In the case of electrotechnical safety standards of the DKE, the manuscript is identified with a VDE classification. Prior to publication, the draft standard is reviewed and released by a department specifically in charge of this task within DIN.

3. Public enquiry procedure

The publication of a draft standard is announced in the DIN Gazette of Technical Rules. Anyone may purchase draft standards and may

submit proposals, statements of position or objections with respect to the draft standards within the deadline specified and substantiate these comments before the responsible bodies.

All draft standards are submitted to the Presidial Board of DIN and are available to the steering bodies of the DKE for assessment. Draft standards pertaining to electrotechnical matters with VDE classification are also available to the VDE Board for assessment with regard to eligibility for the VDE Specification Code of safety standards. Decisions on final provisions in German standards, or contributions for international or European standardization, are generally made on the basis of a consensus.

The DKE represents the resulting German decision on international or European draft standards before the appropriate bodies at the international and European levels.

If a consensus regarding the specification of the standard contents cannot be reached within the competent technical body, clearly defined, democratic rules for mediation and arbitration, which are defined in the DKE statutes and articles, are at the disposal of objecting parties. If the public enquiry procedure results in major alterations to the draft standard, another draft standard is published to give the public the opportunity to submit comments once more.

4. Publication of a standard

If there are no major alterations to the draft standard, the competent DKE body adopts the manuscript for publication as a German standard. The publication and the corresponding inclusion in the German standards collection, and in the VDE Specification Code of safety standards, if appropriate, are again preceded by detailed checking and release procedures, ensuring that the procedures for preparation of the standard have been correctly adhered to.

Drive-by electric car recharging? The DKE is working to make it reality

A future scenario that offers not only improved environmental protection and safety but also incredible convenience: inductive charging of electric vehicles. This would turn car parks and parking spaces into chargers where no one would need to climb out of the car or fuss with plugs or outlets. Induction coils would allow car batteries to recharge fully automatically, without contact, while the driver shops in the supermarket, dines in a restaurant or enjoys a good concert. In other words, the induction coil in the charger (primary coil) could be located beneath the asphalt road surface with the induction coil in the electric vehicle (secondary coil) located between the suspension springs. For use in the garage at home, an add-on module could be used, for instance, that lies on the garage floor and draws its charging energy from the home power supply. As soon as the vehicle is parked over the induction coil, the charging process would be initiated.

Some concepts even go on to envision inductive charging during a journey – naturally with fully electronic billing.

To help make these dreams come true, a working group of the DKE, DKE/AK 353.0.1 on 'Inductive Charging of Electric Vehicles' [Berührungsloses Laden von Elektrofahrzeugen], is working on the fundamental requirements of charger systems of this type. The drafting of a VDE application guide is planned that would lay down the essential parameters such as the minimum level of efficiency, the frequency (range) or the positioning of the coils.

Fuel cells. The DKE helps introduce German cutting-edge technology to the world market

According to experts, production can soon begin of fuel cells that will serve as supply units for laptops, mobile telephones and camcorders. This will open up an enormous market segment for these product areas.

Case Studies Highlights

Even in small, portable devices for mobile power generation, fuel cells will set new standards. Laptops will be able to run for many hours far from the power grid, making the 'low battery power' warning a thing of the past.

Pilot projects are also currently under way in Germany for some 150 small-scale and 15 large-scale plants with fuel cells supplying heat and electricity to single-family and terraced houses and public buildings, and to hotels and industrial enterprises. German companies are technology leaders in this high-tech field and are a driving force for fuel-cell based, combined heat and power generation 'for household use'.

For all the enthusiasm over advances in technology, though, the decisive role that standardization plays in the success story of this cutting-edge technology is frequently overlooked: the secretariat of IEC/TC 105 'Fuel cell technologies' is located within the German committee, which on the strength of its competence prevailed over high-calibre co-applicants when the TC was founded in 2000.

Dialysis saves lives. The DKE makes the process safer for patients

For thousands of patients with chronic kidney failure, dialysis is an established procedure that keeps them alive.

Carrying out the dialysis procedure requires an infrastructure that is suited to ensuring consistent quality of treatment. Likewise, the handling of medical products and their combination with other components is critically important. The guideline contained in DIN VDE 0753-4 (VDE 0753-4):2009-05 describes the process of dialysis, from patient admission to the dialysis centre to the completion of the dialysis procedure.

This guideline is the result of interdisciplinary DKE work with various specialists (manufacturers, physicians and nursing staff) as well as the application of a range of safety standards.

One particular type of risk is posed by additional electrical devices (e.g. heating pads or mains adapters for mobile telephones and

computers). Specifying rules of conduct for staff, along with additional protective measures (e.g. use of a special equipotential-bonding connection), improves patient safety considerably.

Wise resource use with marine renewable energy. DKE contributes to environmental protection

Oceans cover roughly two thirds of the earth's surface. According to experts, power derived from marine energy could meet roughly one third of the world's power requirements. 'Marine energy' is a term that refers to all forms of energy generation immediately deriving from seawater, primarily: wave power, marine current power and tidal power plants.

In Northern Ireland, for instance, a pilot plant is under construction featuring marine current turbines. Marine current power plants convert the kinetic energy of marine currents to electrical energy. This is achieved through turbines anchored to the seabed or attached beneath the water's surface to seabed-mounted pillars. The current created between high tide and low tide propels these turbines. Wave power plants use the potential share of wave energy near the water's surface, which takes the form of fluctuations in pressure beneath the surface, or the kinetic share, which takes the form of orbital movement by water particles. With DKE/GK 385, 'Marine Energy, Marine Current, Wave and Tidal Power Plants' [Meeresenergie-, Meeresströmungs-, Wellen und Gezeiten-Kraftwerke], the DKE is actively supporting this up-and-coming technology and represents German interests before the newly founded IEC Committee, TC 114, 'Marine energy – Wave and tidal energy converters'.

Green data centres. DKE and CENELEC shaping the future

A 'green' computing centre is characterized by high energy efficiency and the lowest possible detriment to the environment.

Operators of computing centres are familiar with the challenge: to provide higher and higher

amounts of computing power while curbing energy costs at the same time. Today, for instance, over the lifetime of a server, the energy costs are a multiple of the server's purchase costs. The IT systems and the requisite infrastructure – such as air conditioning and uninterrupted power supply – account for a large share of energy consumption. Hence, a redoubling of the contribution of European standardization to the 'green' computing centre is the subject of a CENELEC working group under German leadership. The requisite standardization activities are defined based on the results obtained.

Innovative nanoelectronics. DKE and the government promoting Germany as a business location

Thanks to excellent research and development, Germany ranks among the leading industrialized nations in the field of nanotechnology. Nanotechnology permits further miniaturization in semi-conductors and optoelectronics while opening up new fields of application, including medicine and vehicle engineering. Standards and specifications are indispensable to devising application interfaces, identifying performance and safety requirements, and gaining access to global markets.

Accordingly, since 2006 the Federal Ministry of Economics and Technology has successfully supported DKE initiatives in the nanoelectronics sector. With the establishment of a DKE Committee and assumption of Secretariat responsibilities within IEC/TC 113, 'Nanotechnology standardization for electrical and electronic products and systems', the DKE has taken on a leadership role within the field of nanoelectronics standardization. This outstanding strategic position was bolstered in Germany's favour through leadership of the Working Group WG 3, 'Performance', within IEC/TC 113. Small and medium-sized enterprises (SMEs) in particular are involved in this development.

Based on past experience, one thing that is clear is that participation in standardization organizations offers companies such as these a

good opportunity to secure information about technological trends, early on, at relatively minimal expense and with minimal effort. Hence, one declared objective is to continue with the process already under way: the process of getting German companies involved, and expanding this to include SMEs in particular.

Sustainability in electrotechnical products – standardized test procedures from DKE

Heightened environmental awareness has brought about worldwide modifications in the legislation that applies to waste, materials and energy consumption in electrical and electronic products. This presents a major challenge to manufacturers with international operations – challenges that are not just technical in nature. Examples of this include limitations on hazardous substances within the European Union (RoHS), and China's management processes for safety and the control of contamination due to electrotechnical products (China RoHS).

To comply with the prohibitions or restrictions on hazardous substances as set forth in legislation and draft legislation, and to permit issuance of compliance statements, the industry needs reliable and globally recognized, standard test methods. Otherwise, industry will lack the certainty that compliance has truly been established through an inspection by national monitoring agencies or non-governmental organizations (NGOs) in other countries. With DIN EN 62321 (VDE 0042-1):2009-12, over the course of two and a half years of international work, test procedures have been developed that would apply to the use of certain substances in electrotechnical products, among them lead, mercury, cadmium and polybrominated flame retardants. These procedures are set forth in regional regulations that are either in effect now or that will take effect in future, and they can be carried out in laboratories worldwide. Broad-based acceptance of these procedures in the political arena, in the industry, and in laboratories will help promote environmental safety and facilitate reliable planning for the businesses affected.

Case Studies Highlights

Ambient assisted living. The DKE makes houses smart

Bus systems for the networked home date back more than 20 years. In this field, the early initiative by business consortia, and close links to standardization and specifications, permitted the interplay of products produced by a host of European manufacturers within a single bus network. In demonstration and test homes, these systems were put to the test and further developed within the framework of 'smart home' projects. Today, shutters and blinds can be operated via central remote control, lighting scenarios can be activated, and key household appliances can be monitored, or homes protected via networked alarm systems.

Yet the potential of this technology is far from exhausted. The issue is gaining new relevance, particularly as a result of an increased demand for energy-efficient and energy-saving real estate, but also as a consequence of demographic trends. An additional factor is the widespread use of broadband connections, flat-rate services and WLAN, even in private households.

Ever since work began to develop the 'smart home', the VDE has dealt in depth with the technologies used and is making an important contribution to overcoming hurdles to innovation. Work is proceeding apace on key technologies (e.g. bus systems, 'embedded systems') and essential prerequisites (e.g. electronic household meters) for home networking, and on developing important application scenarios (e.g. telemonitoring for the chronically ill). As part of a co-operation arrangement with the German Federal Ministry of Education and Research [BMBF], a BMBF/VDE innovation partnership was created and tasked primarily with the development of systems and devices for ambient assisted living (AAL).

This gives the DKE a key role as interface standards must be drawn up that will ensure device and system interoperability. After all, the technically feasible must also gain acceptance if it is to be suitable for the mass market. And the only way to accomplish this is if the new systems are intuitively operable and interoperable, i.e. if the user can use them in a 'plug & play' fashion.

POWERING FORWARD TOGETHER

Commitment and energy drive us on

The only way to accomplish great and lasting things is to work together. These words of wisdom are familiar to team sports champions – and to successful businesspeople, scientists and researchers. Similarly, the 40-year success story of the DKE cannot be told without mentioning the commitment of many dedicated individuals – and their wide range of motivations. At the DKE, businesses provide the resources, technical experts contribute their knowledge, and the employees in our business organization organize the processes efficiently while providing comprehensive service support. This is how we work together each and every day to improve upon the results of the day before.

This is also how we coordinate the self-organization that reduces the regulatory burden on the federal government. And furthermore, it is how German interests are given an audible voice on an international level.

Every single personal commitment to the DKE, whether in the past or the future, is a powerful contribution to the overall success of electrotechnical standardization.

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The DKE could not exist if not for the work of its technical experts. Thanks to their expertise, background knowledge and experience, they breathe life into the day-to-day work of standardization while guaranteeing results that measure up to the highest standards of quality. But the overall system also owes its successful operation to the dedication of the members of the steering bodies, the Technical Advisory Board members, the German secretaries within the European and international committees and, not least, to the employees in the DKE business organization in the VDE headquarters.

To see to it that things stay this way, the DKE is actively involved in the promotion of young talent. With training and university programmes such as the 'Science to Standards' initiative, it provides insight into the topic of standardization generally and invites young people to become involved at the DKE.

Regular surveys among experts and among users of standards, enriched by a wealth of individual exchanges, confirm a high level of satisfaction with the work of the DKE, but it also reveals areas in which optimization is possible and in which new challenges lie ahead. A lively and realistic organization, the DKE views every suggestion as an opportunity to respond even more effectively to the wishes of its members and users of standards, and to continue to fulfil its fundamental social mission in very dynamic times.

Employment in standardization as an opportunity

Standardization and the benefits it brings can be shaped by an individual participant's own contributions. Successful standards and specifications arise through the powers of the marketplace. Companies that take an active part in developing new standards have the benefit of early information about future developments. This places them in a position to take timely action with strategies of their own. The opportunity to assert solutions of their own at an international level is predicated upon an active role in the standardization process.

The DKE needs Everyone's Commitment

Those who have standards also have the market. In comparison, it is an incalculable risk to stick to proprietary solutions now, only to end up having to abandon them and change over to internationally accepted solutions in the future.

The result can be a loss of market share and re-entry with considerable economic consequences – a risk all the more salient for technology segments with short innovation cycles. In other words, innovation strategy is standardization strategy.

Anyone can participate in and shape the standardization process at the DKE. Depending on their interests and resources, the following opportunities are available:

- Active participation in the bodies of the DKE
- Comments on draft standards issued by the DKE or international documents
- Own proposals for new standardization projects
- Participation in the technical associations and technical committees
- Support of the objectives of the DKE as a passive sponsoring member

With this broad array of opportunities to participate, the DKE offers small and medium-sized enterprises in particular an attractive way to obtain an insight into current technological developments with minimal effort and cost, and to have their own interests represented internationally as well. In this way, innovative technologies can be promoted, partnerships established and investments protected.

The People at the DKE

On the following pages, we'd like to introduce you to several of the people whose dedication helps advance electrotechnical standardization and the DKE:

Dr.-Ing. Klaus Kreß

The VDE Institute has provided Dr.-Ing. Klaus Kreß as the new chairman in the European certification process for cables and cords (HAR).

He is in charge of the certification office of the VDE Institute and is responsible for the certification of products and management systems. 'Standardization is a foundation of product testing and certification, and in this capacity it ensures that a common basis for comparison exists. This helps consumers by providing added transparency and safety, but it also helps companies. Because while legal product requirements often only define the objective, standards explain how these objectives can be reached', Dr. Kreß notes, describing his motivation for working in standardization. Together with some 80 colleagues from the VDE Institute, he contributes his practical experience in the testing and certification fields to the standardization bodies of the DKE; this helps produce realistic testing requirements.

Dipl.-Ing. Gundula Czyzewski

Through her work in the development department for process engineering at BSH Bosch and Siemens Hausgeräte GmbH, Ms. Czyzewski was already in contact with standards during her first project. Over the years, the need to apply standards to washing performance gradually gave rise to an interest

in taking an active role in shaping the process of standardization itself. She seized this opportunity in her participation in international working groups of the IEC, both at the German and the CENELEC levels. Today, as a Convenor she heads up WG1 in the CLC/TC 59X: Performance of household and similar electrical appliances.

She is particularly fascinated by the opportunity to work with experts from various organizations and countries, an opportunity that also presents a great challenge – for instance during an international ring test successfully organized under her supervision and involving 28 participating laboratories worldwide. As difficult as the process may be at times, reaching a consensus matters a great deal and creates the basis for collaboration in a spirit of trust. And a solid result in the form of standards that are globally applicable and of high quality makes work in her company easier each and every day.

Prof. Dr.-Ing. Werner Daum

Dr. Daum is Director and Professor at BAM, the Federal Institute for Materials Research

and Testing, where he heads the 'Measurement and Testing Technology; Sensors' division. BAM is a scientific-technical institute of the German Federal Ministry of Economics and Technology (BMWi). Its mission is to advance the safety and reliability of chemicals and materials technologies, to conduct physical and chemical inspections of materials, products and plants, and to collaborate in the development of legal regulations and standards. Under the leadership of Prof. Daum, specific test procedures were developed for a new type of plastic optical fibre (optical polymer fibres, POF) – particularly with an eye to applications in the automotive area and in industrial communication. Since these areas in particular involve international production chains, it is very important for these new forms of optical fibres to be tested and characterized according to comparable, harmonized worldwide standards. Prof. Daum has dedicated himself to achieving this for many years, both within the DKE and in the appropriate IEC bodies.

Dipl.-Ing. Peter Linnert

Peter Linnert, responsible for 'Strategy and Regions' at Siemens 'Corporate Standardization & Regulation' and secretary of the IEC/TC 70, 'Degrees of protection by enclosures', came in contact with the DKE more than 20 years ago

when working in the technically challenging area of electromagnetic compatibility (EMC). Since that time, standardization has advanced greatly: whereas technical requirements used to be laid down after the fact, today, standardization is a strategic task, even for companies, as it permits them to play an active role early on in defining the technical and economic conditions of market access.

The People at the DKE

‘Standardization offers companies an opportunity to shape products, and hence markets’, Peter Linnert summarizes. But above and beyond the obvious benefits to companies, working in international standardization broadens his own personal horizons as well: ‘In addition to negotiation skills and the powers of persuasion, combined with a high level of expertise and methodological skills, the work of leading international committees also opens up opportunities for intercultural collaboration that awakens a completely different grasp of the various cultures. In a global company such as Siemens, these are very valuable experiences.’

Dr. Wolfram Krause

The eEnergy projects are working to develop the energy-supply system of tomorrow. Dr. Krause, a staff member at EWE AG in Oldenburg, Germany, is project leader for ‘eTelligence’, one of six eEnergy projects. ‘We are going to see a fundamental transformation in energy supply as a way of integrating renewable energies on a considerably greater scale – it has to become ‘smart’. To accomplish this, we have to take decentralized generators and consumers into account in the way the grid is set up. The only way to accomplish this is with the very latest information and communication technologies. A very wide variety of devices, such as biogas plants and electronic meters, will need to communicate and ‘co-ordinate’ with one another across the boundaries between systems and players. They need to be interoperable so that we can take control of

complexity and costs. The only way we can accomplish this is through the kinds of standards and specifications I am working to have instituted in the DKE and internationally through the IEC’, explains Dr. Krause. This is the source of motivation for his work in the DKE as chairman of the DKE/AK 952.0.17, ‘Information Models and Communication for Decentralized Energy Supply Systems’, and as an expert in IEC/TC 57/WG 17: Power systems management and associated information exchange.

Dipl.-Ök. Mariana Bode

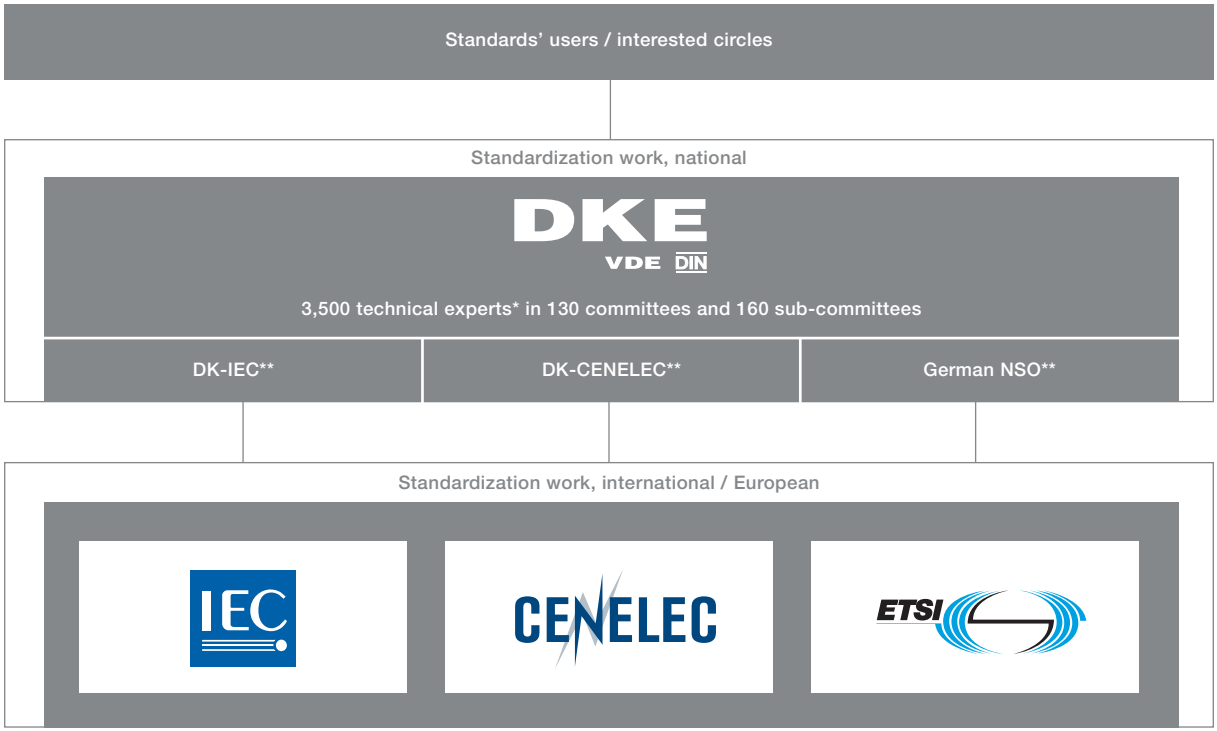
As an adviser to the Department for Standardization, Patent Policy and Inventorship Promotion [Normung, Patentpolitik, Erfinderförderung] at the German Federal Ministry of Economics and Technology, Ms. Bode is responsible for issues in standardization policy. 'Coming to the standardization area from another field, each day I am fascinated by the multifaceted nature and points of contact between standardization and a very wide array of areas in public policy. Standardization is an important element of business, innovation, technology and SME policy. Our German companies are strengthened in global competition because standardization lays out universally applicable requirements while eliminating barriers to trade. Standardization fosters early market penetration for innovations. It helps place Germany among the world's leading nations for promising new technologies. It is important that standardization occurs through self-regulation by businesses, taking into account all of the interested groups, including SMEs and consumers.' Working in close co-operation with the specialized committees of the DKE, Ms. Bode promotes advancements in standardization in the area of electrotechnology, represents public and standardization-policy interests in steering bodies, and initiates targeted promotional programmes, such as a programme to bolster the interactions between standardization and innovation.

Dipl.-Ing. Hans-Peter Steimel

Mr. Steimel is an adviser in the electrotechnology division of the Trade Association for Energy, Textile, Electrical and Media Products [Berufsgenossenschaft Energie Textil Elektro Medienerzeugnisse (BG ETEM)]. For more than 10 years, he has been contributing his expertise in the field of electrotechnology and his knowledge of occupational health and safety to his work in the committees of the DKE – and in committees for standardization at the European level as well. In this way, interactions between standardization and experiences within the trade association relating to accidents and their prevention can contribute to improving occupational safety. Employees and employers alike can be sure that 'standardized' workflows are not only optimized but also safe. European standardization also makes it easier for companies with cross-border operations to introduce uniform workplace safety concepts applicable to multiple locations. Uniform business guidelines also lead to a reduction in accidents. The high level of protection they afford brings economic benefits as well, helping make the necessary funds available for realization of these guidelines.

DKE – active in the international arena

In a world of globalized business practices, successful standardization has to be worldwide standardization. The graphic below illustrates the basic activities of the DKE at the European and international levels.



* In addition, there are technical experts working in some 300 DKE working groups

** DK-IEC: German committee of the IEC / DK-CENELEC: German committee of CENELEC / German NSO: national standardization organization responsible for Germany of ETSI

DKE – how standardization work is organized

The DKE is the German competence centre for standards and specifications in the areas of electrical engineering, electronics and information technology. The VDE Association for Electrical, Electronic & Information Technologies is responsible for the daily operations of the DKE.

At the same time, the DKE is an executive body of DIN Deutsches Institut für Normung e.V.; the results of its work are thus an integral part of the German standards collection. Its electrotechnical safety standards also constitute VDE specifications and are thus included in the VDE Specification Code of safety standards.

More than 3,500 technical experts carry out the technical work of electrotechnical standardization in the DKE working groups. These working groups are – in keeping with the technology segments involved – broken down into nine divisions within the DKE business organisation and are overseen by DKE technical managers. Early in their work, the divisions receive advance support from the Standardization division; this helps pave the way for subsequent work to elaborate standards.

Division 1
General electrical engineering, materials for electrotechnology, environmental protection

Division 2
General safety; design, installation and operation of electrical energy supply installations

Division 3
Electrical equipment for power engineering

Division 4
Electrical equipment for current supply, communication cables

Division 5
Electrical appliances for domestic and similar purposes, installation equipment

Division 6
Electronic components for telecommunication and electronics

Division 7
Information and telecommunication technologies

Division 8
Electromedical equipment, electroacoustics, ultrasonics, lasers

Division 9
Process measurement and control technologies

Standardization division
Interdisciplinary topics: innovations, funded projects, standardization activities

DKE – our past, a success story with a future

1893

21 and 22 January: Charter conference of the VDE (charter name: 'Verband Deutscher Elektrotechniker') in Berlin, with 37 delegates of electrical engineering associations in Germany.

1895

23 November: In Eisenach, adoption of the first German 'Safety Regulations for High-Voltage Electrical Equipment' [Sicherheitsvorschriften für elektrische Starkstromanlagen]. Today these provisions are known as the standards in the DIN VDE 0100 series, one of the fundamental VDE specifications.

1906

VDE helps to establish the International Electrotechnical Commission (I.E.C.) in London. It is joined by organizations from 24 countries.

1917

22 December: Establishment of the DIN as the Standardization Committee of German Industry [Normenausschuss der Deutschen Industrie (NADI)].

1920

Organization of the central VDE inspection authority with the mission of testing electrotechnical products for their conformity with existing VDE specifications.

This is followed by the first registered use of the 'VDE Logo'.

1924

Founding of Beuth Publishers for the sale of DIN standards.

1926

Change in name of the DIN to the German Committee of Standards [Deutscher Normenausschuss (DNA)].

1928

Foundation of ETZ Publishers (since 1947: VDE VERLAG GMBH). Today, sale of standards and drafts, particularly VDE safety specifications, and of electrotechnical trade publications.

History

1935

The Energy Industry Act is announced: in the implementing provisions to this legislation, the VDE specifications are given the status of 'acknowledged rules of technology'.

1952

After re-establishment following the Second World War, the VDE resumes full-fledged collaboration with international organizations.

1970

13 October: DIN (still known as 'DNA' at the time) and VDE establish the DKE (at its founding referred to as the 'German Electrotechnical Commission – Technical Standards Committee for Electrotechnology in the DNA, conjointly with the Committee on Regulations of the VDE'). The DKE begins work on 1 January 1971 – representing Germany's first bundling of electrotechnical standardization in a single entity. As the German committee, the DKE represents German interests before international and European standardization organizations (IEC, CEE, CENEL and CENELCOM).

1973

February: Publication of Low Voltage Directive 73/23/EEC, the first application of the principle of reference to harmonized standards in EC directives.

March: Creation of CENELEC, the European Committee for Electrotechnical Standardization, in Brussels through a merger of the activities of CENELCOM and CENEL.

June: The DKE hosts the IEC annual conference in Munich.

September: The name of the DKE is shortened to 'German Electrotechnical Commission in the DNA and VDE (DKE)'.

1975

May: The DNA is renamed 'DIN Deutsches Institut für Normung e.V.'. The DKE was accordingly redubbed the 'German Electrotechnical Commission of DIN and VDE (DKE)'.

5 June: Signature of the 'Standardization Treaty' between the Federal Republic of Ger-

many and the DIN. Important provisions are entered into in this connection, e.g.:

- the DIN is recognized as the competent standardization organization in Germany and Berlin (West),
- the DKE is a member of three standardization organizations: IEC, CENELEC and CEE,
- the VDE commissions the DKE with the elaboration of electrotechnical safety regulations.

August: The economics ministry identified the DKE as the entity charged with determining and publishing the harmonized standards needed for practical implementation of the Low Voltage Directive of the EC.

1979

April: Issuance of accident-prevention regulations VGB 4, 'Electrical Systems and Equipment'. The instruction guidelines refer to some 600 DIN-VDE standards.

1983

March: Publication of Directive 83/189 EEC, 'Procedure for the Provision of Information'. A central register is maintained of standardization projects with the aim of strengthening and accelerating European harmonization of technical standards and regulations.

1985

May: EC Council decision, 'New Concept'. EC Directives lay down protection objectives for concrete enforcement through harmonized European standards to which the legislature refers. This Directive adopts the principle already in place in Germany: the principle of co-operation between the government and standardization organizations. The objective is to accelerate realization of the European domestic market.

1986

February: Passage of the Single European Act by the EC. The Declaration of Commitment to Completion of the Internal Market by 1992 places high demands on standardization organizations for the elimination of technical barriers to trade.

October: The DKE hosts the 50th IEC annual conference in Berlin (West). Due to the difficult political circumstances, the conference is considered a particular success.

1988

March: Establishment of the European Telecommunications Standards Institute (ETSI), the objective of which is to create a harmonized standards collection in the area of telecommunications technology.

May: Introduction of the 'Vilamoura Procedure' by CENELEC, designed to provide members with information on standardization projects planned by fellow CENELEC members.

1990

October: The DIN and by association the DKE are placed in charge of standardization in the territory of the former German Democratic Republic. The GDR's Office for Standardization, Metrology and Commodity Testing [Amt für Standardisierung, Messwesen und Warenprüfung] discontinues operations and recommends application of DIN standards.

November: Passage of the CENELEC/IEC co-operation agreement for the acceleration of standardization work, designed to advance a market-compatible approach to publication and swift joint acceptance of standards (parallel procedure).

1993

Sale of all DIN-VDE standards on CD-ROM is introduced by the DKE – a pioneering move.

January: Signature of the ETSI/DKE Memorandum of Understanding. Co-operation between the two bodies is specified by contract.

1995

November: '100 Years of VDE 0100'. 100th anniversary of the adoption of the first German electrotechnical safety regulations in Eisenach.

Anniversary: 75 years of the VDE Testing and Certification Institute.

1996

September: The DKE hosts the 60th IEC annual conference in Dresden. The co-operation agree-

ment between IEC and CENELEC is updated and now known as the ‘Dresden Agreement’.

2000

July: Final report of the research project on the ‘Economic Benefits of Standardization’: the macroeconomic benefits to Germany through standardization are estimated to exceed EUR 16bn annually.

2001

June: New name for the DKE in keeping with its changed fields of work: ‘DKE German Commission for Electrical, Electronic & Information Technologies of DIN and VDE’.

2004

December: The ‘German Standardization Strategy’ [Deutsche Normungsstrategie (DNS)] is published: representatives of all of the groups having an interest in standardization in Germany have agreed upon five strategic goals with which German standardization can rise to the challenges of globalization, converging technologies and an increasingly dynamic environment for standardization.

2005

April: The VDE Specification Code of safety standards, integrated with its standards and draft standards, is issued on a DVD-ROM with electronically interlinked contents.

2006

September: In Berlin, the DKE hosts the 70th IEC General Assembly and, parallel to it, the event to commemorate the 100th anniversary of the IEC. This is a special expression of the high level of esteem of the DKE worldwide in its capacity as the German committee of the IEC.

2007

June: At the joint annual meeting of the European standardization organizations CEN and CENELEC in Lemesos on Cyprus, the general assemblies of CENELEC and CEN adopt a joint resolution (on 26 and 28 June 2007, respectively) promoting a European system of standardization that is open, flexible, dynamic and capable of meeting the challenges of future technologies in an increasingly globalized world.

History

2008

May: The DKE establishes the division Standardization to integrate interdisciplinary projects in research and development in its work. The newly created VDE application guides provide a quick means of publication; they are also a part of the VDE Specification Code of safety standards.

2009

March: The DKE creates the INTEC Initiative, designed to strengthen and expand bilateral relations with standardization organizations in the BRIC countries (Brazil, Russia, India and China) and Korea. The principal aim of the initiative is to strengthen and support the international system of standardization while stepping up the involvement of target countries in concrete cooperation projects at the technical level.

August: A new Internet portal at the VDE VERLAG publishing house provides users of standards with complete access for commenting on draft standards of the DKE, along with an opportunity to submit comments to DKE draft standards online.

2010

March: In keeping with the concept of the German standardization strategy as a living document and a sustained call to interested parties to engage in an ongoing development effort, 'German Standardization Strategy: An Update' offers an overview of current issues in light of the vision and the five goals of the strategic orientation for German standards work.

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