

German Standardization in the International Context

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SUMMARY

Technical standards have a much greater influence on our life as one can guess. Hardly anyone is aware of this fact. There is a need for technical standards as a basis for management practice to gain access into all markets by ensuring the safety and quality of products, and by creating safety and confidence. Unfortunately, standards are not in the focus of public interest and so they do not get the esteem due to them. The use of voluntary standardization allows the legislative body to use high qualified working results and to relieve administration. The partnership between governmental standardization and voluntary technical standardization is required, not only for reasons of economy. This is impressively emphasized by the German standardization agreement which has existed for thirty years.

DIN has approximately 76 standards committees (Normenausschüsse: e.g. NABau (construction)), which have a fixed funding system. The government and authorities in Germany (and elsewhere) are the major users of DIN and DIN EN standards (as well as DIN ISO and DIN EN ISO documents), referencing these documents in their regulations (similar to the new approach at European level). Funding and resources are extremely important, considering that the total number of annual meetings (national, regional, world-wide), in which DIN takes part with 3,500 experts has remained at between 5,000 and 6,000.

To make people aware of the actual benefits of tailor-made standards DIN started a research project "Economic benefits of standardization". The scientific study was conducted in Germany, Austria and Switzerland. One of the core findings was that the benefit of standards to the national economy amounts to more than US \$ 15 bn per year.

One of the sections of the Building and Civil Engineering Standards Committee is section 03 'Surveying and Geoinformation' which consists of four working committees: Geodesy, Photogrammetry and Remote Sensing, Cartography and Geoinformation, and Geodetic instruments and Apparatus. They develop national standards, especially concerning terminology, quality requirements and quality control, for standardization projects which are nationally and internationally important and not yet realized somewhere else. The last mentioned three working committees are also involved in the European and international Standardization as 'mirror'-committees to ISO/TC 211, ISO/TC 172 and CEN/TC 287 (www.din.de). Some of the tasks and results - as examples - will be presented directly in this session including some international projects where German experts are contributing as project leaders.

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1. INTRODUCTION

Technical standards have a much higher influence on our life as one will guess. The copying machine runs standardized paper formats, standardized containers simplify the change of transport systems and the building where we are just staying has enough solidity. Hardly anyone spends time on thinking of such things. To meet liability in those expectations there is need for technical standards that reflects expert knowledge at all interested levels. It goes without saying that standards are applied as base of management practice for contracts between supplier and deliverer to prove safety and quality of products and to get at least unchecked entry into all markets. The expert knowledge expressed by standards creates safety and confidence. But the ease of using the standards creates at the same time a problem. Standards are not in the focus of public interest and so they do not get the esteem due to them.

2. STATUTORY PURPOSE OF DIN

DIN is a technical and scientific association which issues German Norms (Standards). It is composed of interested bodies working for public benefit in the fields of environment, safety, communication in science, economics and administration. At the same time, DIN represents German interests in European and international standards and it represents national German concepts. Also, it supports the transfer of international work results into German DIN standards.

Standards are the result of consent within interested working groups. They have the character of recommendations and their application is voluntary. Standards are applied in practice, because they comply with the requirements of interested groups and simplify their business. In connection with general given legal regulations they make it much easier for a producer to pay attention to the standardized demand of conformity with statutory order. The time factor plays an essential role in traditional standardization for consent is aspired by all interested groups. Especially on European and international level unification is difficult and time-consuming. Studies prove that 60% to 70 % of time spent on a project is necessary to generate consent.

There are some cases where passing of a standard is blocked by individual interest. The Institutes of Standardization do not have any influence on such delays.. Nevertheless the time factor has become a point of criticism in the standardization process lately.

But consent needs time. And consent means along DIN EN 45020 the general approval by lack of contradiction at the same time. With this kind of consent comes a time demanding effort of persuasion and also consultations with interested groups with their orderers. In some cases 'not to maintain' within a company to change some of the short- or long-term aims.

A workable consent will be found very often after an open discussion of pros and cons. This way of finding consent is marked as "negotiation-democracy" (in contrast to majority-based decision

democracy). Through these negotiations positions with different preferences lead to reciprocal concessions, so the results are profitable for all persons involved. Consent therefore is not based on the lowest common denominator, but on a denominator of high acceptance of all persons. But without time this will not work.

On the other hand you will find out that you will have only little time to spend on negotiation concerning consent. The establishment of a stable development in techniques is not always attainable though in many cases it is enough to describe the temporary status of techniques and to publish it in papers or pre-norms. Such results of work do not reach status and importance of DIN-Standards.

3. INTERNATIONAL STANDARDIZATION

Representatives of international standardization are ISO (International Organization for Standardization), IEC(International Electro technical Commission) and ITU(International Telecommunication Union). ISO and IEC are private organisations to whom national organisations for standardization belong as members. ITU is a government organisation. The historicly grown division into fields of work does not consider the penetration of all modern technologies and does not match today's requirements. Industry expects efficient structures and processes. Parallel work is to be avoided, anyway so new models for an integrative international system for standardization have to be developed.

The "World Standards Cooperation"(WSC) is a first step in this direction. Essential aims by this joining together are:

- better coordination of expert work
- avoidance of dual work
- use of synergy potential
- common use of resources
- coordination of IT-Infrastructure
- reducing of costs for experts from industry and organisations for standardization.

This does not mean the melting of the three organisations but the efficient use of resources for common wellbeing. The individual sections of industries have different needs, which Standardization has to consider. A common roof is urgent for a necessary solidarity. The necessary peculiarities of the industry section have to be considered. For the industry it is important, that the interfaces of the three organisations are harmonised.

DIN supports the initiative of developing the World Standards Cooperation. Its task is to build up the virtual roof for a worldwide work of standardization and to settle the now divided domains non-electro-technical standardization (ISO), electro-technical standardization (IEC) and telecommunication standards(ITU-T) amongst themselves, so economy will get a significant reduction of time and energy.

German standardization follows the principle: One standard, one examination, respected everywhere.

We are convinced of the consequent realization of this central idea that has decisive advantages for all members. On closer examination of developing markets international standardization came more and more into the focus. If one asks the industries for their demands, you will get the following results:

- Worldwide trade needs international standards.
- Contradictory national standards are trade barriers.

That means, that the industry demands on international standards. Certainly one cannot deny that there is competition between working areas. As far as regional interests obstruct consent on international level, it will be considered the priority of European Standards legitimate. The task of the organization for standardization is to fulfil this demand of interested groups.

In addition to that the implementation of agreed political aims will be supported by the members of the World Trade Organization (WTO). Because of that all member states of the WTO and the European Union have obliged in the frame of TBT-agreements to exercise international standards on their tasks. At the same time self-interest of national organizations for standardization and other normgenerating organizations have to be put aside. Competition between organizations for standardisation and the existence of contradictory standards cannot be desirable by economy. Standardization is not a profitable business, but a service for economy.

When we talk about international standards we mean a worldwide agreed standard by all interested groups. It is not sufficient to call national standards international standards only because they are used only beyond the borders of the own country. This process will lead in result to a competition between national systems and will prevent the harmonization of standards industry always demands.

Even the bilateral appreciation of different standards between individual countries or economic areas is an insufficient measure because one will get a variety of diverging national and regional standards established. With that, trade barriers will not be removed because manufacturers and exporters supply their goods furthermore along national standards. The advantage of an extensive harmonization along WTO and the demands of economy will not be fulfilled.

4. STANDARDIZATION IN EUROPE

The structure of European standardization reflects the three-part of international standardization. CEN (European Committee for Standardization) and CENELEC (European Committee for Electro-technical Standardization) are private organizations and are supported

by national organizations for standardization of the 28 EU- and EFTA-States. ETSI (European Institute for Standardization of Telecommunication) is as well a private organization but it does not work along the principle of delegation, it allows the direct membership of individual business.

The European Standardization replaces in many cases the national standardization of the member states of the European Union. Under no circumstances the European Standardization appears as a competitor for international standardization. Europe shows commitment in liberal world trade and dismantling of trade barriers. By the agreements of Dresden (IEC/CENELEC) and of Vienna (ISO/CEN) the national and international work on standardization fit well to each other. Priority almost has the international standardization. As far as ISO and IEC have achieved a world wide consent, CEN and CENELEC assume these international standards unchanged as European Standards and relinquish own activities on standardization. Following this principle, DIN gives the development of standards by ISO and IEC priority treatment on international level. In this way a harmonization even beyond the European space of globalization of markets and dismantling of technical trade barriers will be possible. It is important that acceptance of an international standard means to withdraw a contradictory national standard.

Dismantling of technical trade barriers is only possible when technical regulations as well as voluntary standards will be harmonized. This is the basis for combining governmental standards regulations and voluntary technical standards. For the function of the European Single Market the European standards play an important role. The decision of the European Parliament from may 7th 1985 “ new conception on the field of technical harmonization and standardization” laid the foundations for this principle, whose main item is the principle of reference to European standards.

On the harmonization of regulations a restriction is imposed just to fix guidelines for basic requirements or others, in the interest of everybody. It is the task of the European organisation for standardization to put the basic and fixed requirements in guidelines, considering the state-of-the-art technology. The harmonized European standards don't have a mandatory character. Their application is voluntarily, but a supposition of conformity is necessary. So, manufacturers that produce along the harmonized European standards can assume their products will fulfil the basic requirements of the guidelines and will be sold throughout Europe.

Even in a passed European guideline a reference to European standards will take place only if the commission of the permanent committee thought about it properly and there is no doubt left that CEN and CENELEC are content with the requirements for European guidelines. A commission and permanent committee will make up the decision if worked out European standards by CEN and CELENEC are suitable for supposition. Their decision is under control by the European Court of Justice. A delegation of legislation to CEN or CELENEC doesn't take place. This concept of legality is approved by the European Parliament with its resolution of April 8, 1987. The other approach, based on European standards is not democratic, because interested groups are not directly emerged, and it does not work either. In the case of harmonization of already fixed national standards on European level the interested groups were involved. And that is how it works all the time when national standards have to be harmonized.

5. ROLE OF NATIONAL INSTITUTES OF STANDARDIZATION

The standardization on individual levels as national, European and international level is not separated from each other but it is interrelated.

The model of New Approach for the national transformation of guidelines into national standards leads to an adoption of European standards in the European Community. One can find European standards used as well as national standards as cornerstones of the European Internal Market. Within the last years more and more international standards have been implemented as national or European standards.

In Germany in 1986, before the adoption of the New Approach, 95 % of all standards were pure DIN standards and only 1% national adoption of European standards, the rest was adopted from international standards. European Standards include EN-ISO-Standards which are accepted international standards. Today this picture has changed dramatically. While the number of reliable adopted European standards, named DIN-EN-Standards, and the number of nationally introduced international standards increases, the development of pure national standards is reduced.

The principle of subsidiarity and of national delegation is a main component of European and international standardization. What national organisations for standardization offer, is:

- Involvement of interested groups
- Formation of opinion in mother tongue
- Public objection
- Consideration of national rules
- Implementation of IT-Infrastructure
- Installation of offices

The national organisations for standardization remain the constitutive foundation stones of the system of European and international standards.

6. NORMTREATY

The relationship between government and organisation for standardization in Germany is based on contracts. This normtreaty is a consequence of a concluded treaty of 1975 between the Federal Government and DIN and is the background for the outlined legal significance of DIN-Standards as accepted rules concerning techniques. DIN is the responsible organisation for standardization of the Federal Republic of Germany and is accepted by the Federal Government as national organisation in a non-governmental international organisation for standardization. DIN is obliged while working on standardization, to take care of public interest and standardization activities the Federal Government has a public interest in.

DIN is committed to encourage official authorities to take part in their standardization activities.

On top of that the normtreaty demands that DIN endeavours to help for a better international understanding of the field of standardization while it supports technical simplification on international and European level as well as a liberation of trade and a dismantling of technical trade barriers. The normtreaty confirms the principle of self-administration of all persons involved in economics including the state in working on technical rules. It justifies the principle of reference to DIN-Standards in legislation and administration. This treaty favours creating a unified, that means a self-contained, and consistent German system of norms

on European and international level.

7. LEGAL ASPECTS OF STANDARDIZATION

DIN is a private society. There is no supervision, direction, and control by the parliament. In so far DIN-norms are no legal regulations, but voluntary technical rules. These are based on the principles of the standardization work. By the special procedures DIN-norms contain the professional knowledge of all interested groups. In spite of that it is possible, that DIN-norms can get a legal importance.

8. GOVERNMENT RELIEF ROLE IN STANDARDIZATION

Standardization can discharge the administrative settling of rules. On European level this concept named "New Approach" is completely fulfilled in connection with the completion of the Internal Market. Legal provisions- named "Directives" are limited on fixing protecting aims, which are basic requirements. To fulfil these requirement concerning technical details there will be a hint on European Standards. Examples for this "Directives" are safety of machines, medical and printing equipment.

This principle is proving worthwhile on national level for example in the field of safety of equipment or in the area of civil engineering. The legal provisions are limited to fixing basic conditions and incidentally refer to standards. One has e.g. to distinguish between national and European level of requirements on products. Another example is the administrative release on the effect of standardization is the regulations concerning federal law of immissions.

9. USE OF STANDARDIZATION

Standardization causes costs. One can only justify those costs if there is a great use. Standardization is a little bit like a kind of investment. The annual budget of DIN (including all branches) makes about 90 million €. In addition to that industry and interested groups spend another 650 million € on standardization for example to make experts available and overtake their travelling expenses. On the other hand there is the economic use which deduces from standardization on the German economy which makes about 15.9 billiards € annually. This is about 1 % of the gross national product. Economic growth is strongly influenced by standardization. It is important to understand that standardization is more efficient for economic growth than patents or licenses are. These are the results of a study on behalf of DIN "Economic Benefits of Standardization". These studies show clearly that industry-wide standardization does not only have positive effects on the national economy but also guarantees individual advantages of businesses as far as standardization is used as a strategic instrument.

10. RESULTS

Nobody denies the usefulness of voluntary standardization. It allows the legislative body to use working results which show the knowledge of all interested parties. Voluntary standardization relieves administration. The authorities by themselves are not able to produce such technical frames

of rules for the common good and to support the economy. Besides that, the administration would have immense costs. Therefore the partnership between governmental standardization and voluntary technical standardization is urgently required. This is impressively emphasized by the standardization treaty which has existed for thirty years.

11. BUILDING AND CIVIL ENGINEERING STANDARDS COMMITTEE (NABAU) AND SECTION 03 'CARTOGRAPHY AND GEOINFORMATION'

DIN has approximately 76 standards committees (Normenausschüsse: e.g. NABau (construction), NAW (water (distribution, treatment etc.)), which have a fixed funding system. An awareness of the benefits of standardization means that the interested parties are prepared to finance the work of the standards committees. The government and authorities in Germany (and elsewhere) are the major users of DIN and DIN EN standards (as well as DIN ISO and DIN EN ISO documents), referencing these documents in their regulations (similar to the new approach at European level).

One of the major points, possibly similar to the worldwide situation, is funding and resources. Considering resources for standardization one must consider

- available technical knowledge usable through participation of experts as the representatives of the stakeholders including the willingness of these stakeholders to participate in the work and to carry the burden of its cost, and
- financial means to enable standard organizations (NSB) to organize the standardization work.

In the past, both areas were covered as far as the construction department of DIN was concerned. There have been working approximately 3,500 experts in all kinds of committees and the respective services were funded with a total of about € 4 million in the year 2000. Linking this information to reports of DIN Deutsches Institut für Normung e. V. in the past it is obvious that, as of 1993, fewer experts are prepared to take part in the standardization work of DIN.

Whereas the number of participating experts in technical committees of DIN has been in steady decline since 1993 after an increase in 1990 of about 10 % (perhaps as an effect of the reunification of Germany?) the total number of annual meetings in which DIN took part (national, regional, world-wide) has remained more or less stable at between 5,000 and 6,000.

On closer evaluation, it has to be remarked that the development of the budget of the construction department, Construction and Civil Engineering Standards Committee (NABau), of DIN has, over the last years, had some similarity with the development of the number of meetings of national (DIN) and regional (CEN) and world-wide (ISO) committees in which DIN experts participated, both increase since 1996 and decrease in the most recent years.

A general line is to make people aware of the actual benefits of (tailor-made) standards. To achieve this aim, DIN started a research project "Economic benefits of standardization". The study, which was designed to establish scientifically the economic benefits of standardization, was jointly initiated by DIN, the German Institute for Standardization, and the German Federal Ministry of

Economic Affairs and Technology (BMW) in 1997 and completed in April 2000. In addition to the final report in three volumes, an Executive Summary supplemented by practical examples was also published in German and English.

Among the core findings of this joint research project, which was undertaken by the Technical University Dresden (TUD) and the Fraunhofer Institute for Systems and Innovations (ISI) were:

- The benefit of standards to the national economy amounts to more than US\$ 15 bn per year.
- Standards contribute more to economic growth than patents and licences.
- Companies that participate actively in standards work have a head start on their competitors in adapting to market demands and new technologies.
- Transaction costs are lower when European and International Standards are used.
- Research risks and development costs are reduced for companies contributing to the standardization process.

The following organizations and companies also contributed to the financing of the project: DaimlerChrysler, Siemens AG, Hans L. Merkle Stiftung, ThyssenKrupp AG, German Electrotechnical Commission in DIN and VDE (DKE), the Austrian Standardization Institute (ON) and the Swiss Standards Association.

Furthermore DIN has organized a "DIN Prize" to encourage companies to present concrete examples of the benefits to be derived from standardization, either as a strategic investment or as a result of implementation, DIN has instituted an annual competition, the three best works, these being awarded to the most cogent examples submitted.

In addition it can be assumed that also the European Commission will ensure that the harmonization of the construction products standards will be continued.

It will be a task larger than what CEN already achieved for the construction product standards to establish the corresponding parts of available European Standards.

Whether the manpower and the funding for the experts and the NSBs will be available is not yet known. It should be especially the European Commission and the member states which should try to enable CEN to establish this missing part in the system following the CPD.

The standards committee on construction and civil engineering (NABau) has 11 sections. One of them is section 03 'Surveying and Geoinformation'.

There are four Working committees - Geodesy, Photogrammetry and Remote Sensing, Cartography and Geoinformation, and Geodetic Instruments and Apparatus - which are developing national standards. The three Working committees last mentioned are also involved in European and international Standardization. The work focuses on terminology, quality requirements and quality control. In principle, where the 'mirror' function of ISO/TC 211 or ISO/TC 172 or CEN/TC 287 is not concerned, the strategy of national standardization projects is to develop standards, which are nationally and internationally important and not yet realized somewhere else.

In the working committees, the interest of the economy, the public administration, the service, as well as research and teaching are involved. The total number of standards developed can be found on the website.

Some of the tasks and results are part of this seminar and will be presented directly in this session, also some international projects in which German experts are contributing as project leaders.

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BIOGRAPHICAL NOTES

Academic Experience: Dipl.-Ing. Geodesy, University Hannover, Dr.-Ing. Geodesy (Totalstations), University Hannover, 'Vermessungsassessor', Second Exam on Administration and Laws, Surveying and Cadastral Administration of Lower Saxony (Niedersachsen), Professor 'Cadastre and GIS', Technical University Braunschweig, Honorary Professor of Wuhan Technical University of Surveying and Mapping (WTUSM), Wuhan, China

Current position: Professor 'Cadastre and GIS', Technical University Braunschweig, since 1975

Head of Division 'Surveying- and Cadastral Administration- Cadastre, GIS, Standardization, International Cooperation' of Ministry of the Interior of Lower Saxony, Hannover, 1988-2000, Head of Cadastral Office of Hannover 1972-1988, State Survey Office of Lower Saxony (in different leading functions) 1964- 1972

DIN, German Institute for Standardization: Head of Section 03 'Surveying; Geoinformation', since 1975

ISO/TC211: Co-chair of Advisory Group on Outreach of ISO/TC211, since 2002

Head of German Delegation to ISO/TC211, 1994 - 2005

CEN/TC287: Co-chair of Advisory Group on Outreach of CEN/TC287, since 2003

Head of German Delegation to CEN/TC287, since 1992

ISPRS: Representative of ISPRS to ISO/TC211, since 1996

International experience: e.g. Brazil, Mexico, Golf Area, China, Sri Lanka, Korea, South East Asia, Africa, Poland and East Europe, e.g.

Activities in home and international relations:

Workshop 2 - International Standards Seminar I
Hans Knoop
German Standardisation in the International Context

10/11

Shaping the Change
XXIII FIG Congress
Munich, Germany, October 8-13, 2006

Member of DVW, Member of DGPF, FIG, Commission 3, GSDI and standards, FIG, Group on Standards (implementation), German Society for International Projects (GTZ), German Foundation of International Development (DSE), Carl-Duisberg-Gesellschaft, UN, EU, uam

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