Globalizing technical standards : impact and challenges for occupational health and safety

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The development, over the last 20 years, of technical standards relevant to occupational health and safety

Before the New Approach

To understand properly the current situation, it is vital to look back over the last two decades at the various forms taken by technical standards relevant to occupational health and safety.

Twenty years ago, the body of existing standards of this type was made up almost exclusively of a few (fairly disparate) national standards, and a few international standards (ISO/IEC), dealing with scientific disciplines of importance to the health and safety of individuals (in particular ergonomics, acoustics, vibrations, etc.). They often dealt with methods of measurement. European standards still played an extremely minor role. There was practically no link made between standardization and regulation. Such standards, updated regularly, now represent an invaluable source of scientific data for those involved in the prevention of occupational accidents and illnesses.

New elements introduced in the New Approach

These scientific standards were completely apolitical in nature and drawn up by specialists in each area. In parallel, the European *New Approach to technical harmonization and standardization*, launched in 1985, established and developed a type of standardization which was closely linked to the European directives on the design of products[1] with an impact on health and safety. The New Approach closely combines a social objective – *ensuring a high level of individual protection* – and an economic objective – *abolishing technical barriers to trade* – thus encouraging the joint involvement of economic players and the social partners.

A new type of standardization, it brings together three sets of *interested parties* : manufacturers of the products in question, users of these products and "prevention agencies" (the public authorities or other bodies responsible for the prevention of accidents and occupational diseases). It stimulated, especially during the first ten years, unprecedented involvement of European experts representing all interested parties, and so led to an intensive cross-fertilisation of ideas, with benefits clear to all.

Reasons for the gradual "shift" to the international scene of European standards on safe product design

In the 1980s, ISO had launched the memorable slogan : "Do it once! Do it internationally!". Around 1990, ISO technical committee 72 (in which European countries played a predominant role) was drafting simultaneously for CEN and for ISO a standard on textile machinery, and realised how valuable it would be if international standards could refer to provisions in the "horizontal" CEN standards. To this end, in November 1991 ISO technical committee 199 "Safety of Machinery" was set up, as an international response to CEN technical committee 114.

The first work based on European standards

Taking a pragmatic approach, ISO/TC 199 then decided to take full advantage of work being done in Europe and to submit to the international community the standards and draft standards drawn up by CEN/TC 114[2], with a view to turning them into international standards.

The will to succeed was so strong that the European and international standardization bodies were quick to develop new procedures. For example, when CEN and ISO decided to work together, under the Vienna Agreement, on the revision of EN 292:1991 (the basic standard, underlying all the European "machinery" standards), the task was entrusted to a special working group of CEN technical committee 114, made up of experts designated by the member committees of CEN, CENELEC, ISO and IEC. That revision of EN 292: 1991 was launched in 1995, and will culminate this year, 2003, in the adoption of EN ISO 12100. The process will have shown the difficulties inherent in starting from a European standard, and trying to convert it into an international standard which still meets European requirements. This task is especially problematic when the standard in question contains certain elements which are viewed in differing ways by countries with different cultures and different ways of organising society.

Such difficulties, however, have not always arisen. A fair number of European "horizontal" standards concerning safe machinery design have become international standards, following a public enquiry and vote by the member Committees, without any change being made to their technical content.

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[1] Essentially machinery and personal protective equipment.
[2] ISO/TC 199 has also started an original project, i.e. not based on European work : the development of a standard on hygiene requirements for equipment used in the agri-food sector.

Success factors and difficulties inherent in the European New Approach

Success factors, in particular from the point of view of prevention

Eighteen countries[3] have succeeded, over fifteen or so years, in drawing up and adopting a vast, logically structured body of standards to support the "machinery" and "personal protective equipment" directives. Today, even those who began to lose patience during the process must admit that this is a pretty impressive record. We must realise, though, that the circumstances surrounding this project, launched in 1985, were propitious.

Firstly, the countries involved in the undertaking are countries with a similar (or not too strikingly dissimilar) level of technological and regulatory development. Then, the relatively small size of Europe means that it is particularly easy for experts to meet. Finally, it is worth remembering the positive impact of the "ground rules" set by the European institutions :

- a single legislative framework provided by the European directives, and incorporated into the legislation of each State ;
- essential requirements in the directives providing a strict frame of reference for the development of standards, and so avoiding a situation whereby the standardization group would reach consensus on too low a level of requirements (the "levelling down" which would inevitably occur without constant reminders of the obligation to ensure "a high level of individual protection") ;
- the requirement on all member countries of CEN and CENELEC to incorporate into their national set of standards any standard adopted by these bodies.

One example given by Friedhelm Nachreiner and Lennart Levi, in their articles on standards dealing with the mental workload, shows clearly how the political and social importance of the European standards tends to awaken the critical spirit of representatives of the various interested parties. The same draft standard on design principles for work systems, focusing on the mental workload, went through the ISO public enquiry unopposed, but gave rise to many objections and comments during the CEN enquiry to which it was submitted "in parallel". The reason for these differing attitudes, beneficial in terms of prevention, becomes clear when one realises that mental workload is covered in three European directives, including the Machinery directive.

Difficulties, weak points

The public authorities in each State have, for a great many years now, been responsible for drawing up, interpreting and enforcing laws and regulations concerning occupational health and safety. Standards, on the other hand, are drafted in bodies where these authorities are only one of several interested parties, and have to deal with others representing private interests (equipment manufacturers and users), and non-State prevention agencies. It is understandable if representatives of the public authorities sometimes find it hard to accept the idea of practical interpretation of the law being partially in the hands of private interests. Moreover, most standardization bodies use a working method geared towards consensus, a method which leads them to evade the main points of disagreement, often the result of practical difficulties encountered during the application of certain essential requirements in the directives. This does not make the task of the public authority representatives any easier.

Another weak point is the *conditions of access to standards*. While laws and regulations are texts in the public domain, to which all citizens should – and indeed do – have cheap and easy access, standards are covered by *copyright* and are sold (at quite a high price !) by the national standardization bodies.

The system of laws and standards developed under the European New Approach is complex and voluminous, not easily accessible. For this reason, various initiatives have been launched in certain countries to bring about a situation where European standards would be used as a broad basis for the teaching of machinery design[4]. Results so far are encouraging, but it is regrettable that the European Commission has not, as of yet, supported these moves. It is not too late for it to decide to do so !

Finally, the people most directly affected by the equipment covered by the standards – workers in industry and consumers – are not yet sufficiently able to feed into the standard-drafting and revision process the benefits of their unique practical experience. We must welcome and encourage any initiative – such as the TUTB-SALTSA programme – which aims to make full and overdue use of this experience.

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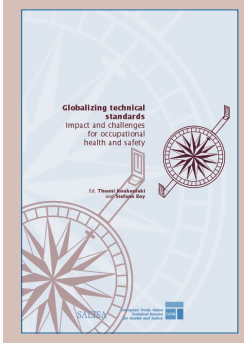
Ed. Theoni Koukoulaki and Stefano Boy



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European achievements

A tried and tested philosophy and methodology

The European New Approach gave a proper status to *the principle of safety integration* in machinery design. This principle is based on the idea – not accepted to the same degree in every part of the world – that the best form of prevention is obtained when the designer of a piece of equipment reduces the risk as far as he possibly can, given the state of the art, thus minimizing the number of preventive measures which will need to be taken by the user.

[3] Eighteen at the outset, nineteen after the accession to CEN and CENELEC of the Czech Republic.

[4] The introduction to both EN 292: 1991 and its revised version (EN ISO 12100:2003), states : "It is recommended that this standard be incorporated in training courses and manuals to convey basic terminology and general design methods to designers".

Thanks, in particular, to basic standards EN 292 and EN 1050, the New Approach created a formal method of *adequate risk reduction*, based on a series of steps of *risk assessment* and *risk reduction*, whose outcome is evaluated not only in terms of the risk reduction obtained, but also in the light of other factors, such as the non-creation of new risks, ability of the machinery still to do its job, preservation of working conditions for the operator and others involved in the process.

The procedure to be followed by the designer for risk reduction is based on the so-called "three stage method": *inherent design measures - safeguarding - information for use*. When applied systematically, this method gives the designer the best chance of avoiding serious oversights, and leads to the most effective and "elegant" results.

Considerable efforts to harmonize technology

CEN/TC 114, responsible for drawing up the main horizontal standards on the safety of machinery, has taken it upon itself to define the most important concepts used in this work, and to create, in the languages of the member countries of CEN/CENELEC, a consistent body of terminology, important not only to help people understand the standards, but also to provide a clear basis for future discussions.

Considering all possible risks

The European New Approach should also be credited with having finally given due importance, in the design of safe machinery, to *ergonomics* and *emissions* (noise, vibrations, radiation and / hazardous substances). For many years, prevention in this area had been confined almost exclusively to risks of mechanical and electrical origin.

Conditions and future prospects for the globalization of technical standards

"Flexibility" needed from European partners...

Europeans would be seriously mistaken to believe that the system of standards developed under the New Approach is the best possible system, and so to insist on transposing it "lock, stock and barrel" to an international level.

Firstly, we must not forget that these standards depend to a great extent on European directives, which have no international equivalent. The idea, put forward by some, of developing equivalents of the New Approach type directives for the whole world would, though maybe not entirely unrealistic, provide no short-term solution.

Moreover, what standardization attempts to do is to overcome the disadvantages of diversity and to make full use of its advantages. The main asset of the New Approach has been the diversity of the European input. It would be a real shame, when expanding the process to the rest of the world, not to fully benefit from all the original ideas which would be bound to come from the new participants.

...but also the need to preserve what we have already achieved in Europe

How better to express this than to quote directly from Ian Fraser in his article *From CEN to ISO and back...* : "European safety experts should approach the transfer of standards from CEN to ISO with an open mind. Given the advantages of having a global standard, we should strive within ISO to reach agreement on a standard that is both internationally acceptable and in line with the essential requirements laid down by European regulations. This will obviously involve taking into account the different approaches to design and use of machinery existing in different parts of the world. That such agreement is possible has already been shown by progress on global methodological machinery standards."

Ian Fraser is referring here to the fascinating experience of revising EN 292, a process which began at the end of 1995 and which will come to an end this year with the adoption of an international standard – EN ISO 12100 – complying with European requirements.

Greater difficulties in organising the "input of information" from the field

We have already seen, taking stock of fifteen years of European standardization, that one of the main causes for concern is the fact that, up to now, far too little use has been made, to improve the standards, of the experience of "workplace users", the very people most affected by the safety level of machinery and personal protective equipment. Using this experience for international standards will be far more difficult than for European standards, since experts are scattered far and wide. The only glimmer of hope is the possibility of working through international, internet-based networks, such as the network – EUROSHNET – which European prevention agencies are now beginning to use.

Incompatibility of certain international standards with European requirements

What happens when the compatibility of an ISO or IEC standard is checked against European requirements ? There are many examples of international standards which "do not fit" into the European New Approach system, either because they are addressed indiscriminately to designers and users (one example being an ISO standard on automatic production systems), or because their scope is far wider than those covered in the European system (Maurizio D'Erme refers in his article to the many difficulties encountered in the area of machine control systems).

Admittedly, though, for some purely technical subjects it has sometimes been very useful, and unproblematic, to refer to international standards in certain European

standards, at a stage before these have been turned into international standards. For example, IEC standards on "safety" components now provide a useful addition to the European standards (adopted in ISO) on emergency stop systems and interlocking devices.

Future prospects

One of the most important achievements of the European system is to draw a strict distinction between the obligations applying to designers and those applying to users. In many non-European countries, however, there is considerable vagueness as to these obligations themselves and as to how they are split between designers and users. It is true that the European New Approach standards can only be addressed to designers ; but nothing would prevent an international standard, whose design provisions were entirely in line with the essential requirements of the directive in question, from also including provisions for users, as long as, of course, the latter were clearly distinguished from the former.

The international answer, mentioned earlier, to the New Approach (international agreements replacing the "regional" European legislation), is arousing interest, it is said, more or less throughout the world (in particular among certain European manufacturers who export all over the globe). Be that as it may, Europeans should take care that the strong points of the New Approach are not left by the wayside.

Apart from the system of "regional exemption clauses", which should be ruled out, as it runs more or less counter to the desired goal, every effort should be made to develop international standards which meet the European requirements. The imminent success of the revision of EN 292 – a success which, it is worth remembering, was far from a foregone conclusion ! – gives grounds for optimism as to the future prospects of this approach, in most cases. However, if it is unsuccessful, we will have to resign ourselves to living a little while longer with separate international and European standards. ■

International standards for the elimination of barriers to trade :
an analysis of the agreements and discussion on standardization policy
Dr. Josef Falke, Universität Bremen (ZERP)

KAN report No. 29, 2002, 46 pages

Mr. Corrado Mattiuzzo, KAN technical officer, gave a presentation on the KAN report to the Conference. The document can be viewed on the website : http://tutb.etuc.org/uk/newsevents/files/mattiuzzo.pdf

A GLOBALIZED STANDARDIZATION PROCESS

Ten years of Swedish trade union activity in the national and European standardization process

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LO - Swedish Trade Union Confederation

This is a summary of a fuller report written by Sven Bergström in collaboration with the joint LO standardization group ASTA and its former chairman Bo Tengberg. English translation by Erica Stempa. Available in English on the TUTB website : http://tutb.etuc.org/uk/dossiers/files/tu-report-sweden.pdf.

Introduction

The overall objective of trade union participation in standardization work is to put trade union experience and knowledge to use to contribute to better standards and thus reduce the risk of occupational diseases and accidents for workers in Sweden and Europe. Good standards should help to create satisfactory working conditions and therefore "better jobs".

Technical developments constantly give birth to new products, methods and organisation that may bring new risks. Experiences of products such as asbestos and solvents show that trade union vigilance in needed to protect workers' health.

Swedish authorities and social partners have traditionally cooperated in drawing up work environment regulations on a tripartite basis, so the Swedish Trade Union Confederation, LO, was involved in this area of work long before Sweden joined the EU.

Following the Council of Ministers of the European Communities decision in 1985 to launch a New Approach to harmonising national rules, the Swedish *Riksdag* (parliament) agreed that Sweden should deepen cooperation with its European neighbours, even though it was outside the EC. Sweden was able to influence the common rules even though it could not help to frame directives, and thus the forum for trade unions to exercise influence moved from national tripartite collaboration to European cooperation.

LO set up a working group that, in 1988, called on the government to launch a study of the increasing