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A European system to improve machinery safety by drawing on users' experience

Summary of the seminar organised by the Health and Safety Department of the European Trade Union Institute for Research, Education, Health and Safety (ETUI-REHS)

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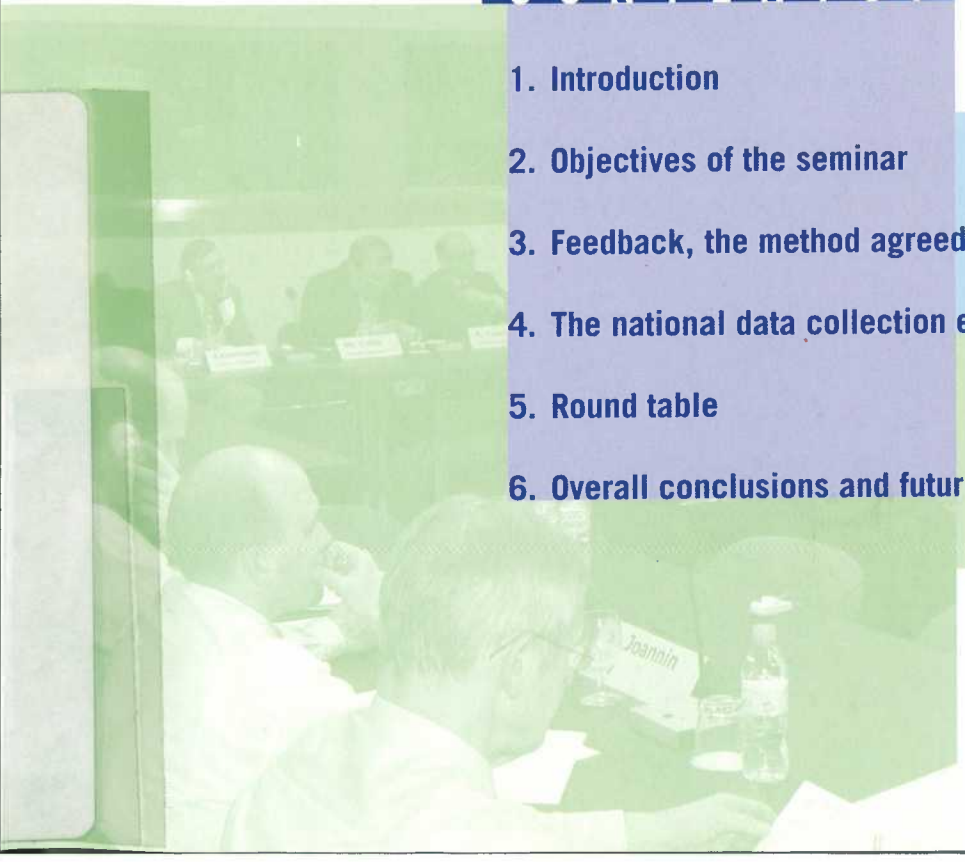

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ETUI-REHS

1. Introduction

This publication summarises the results of a seminar (27 March 2006, Brussels), organised by the European Trade Union Institute for Research, Education, Health and Safety (ETUI-REHS) to unveil its strategy for improving machinery standards through users' feedback. Under the chairmanship of Bart Samyn, Deputy General Secretary of the European Metalworkers' Federation (EMF), the five ETUI-REHS national partners – Finland, France, Germany, Italy, United Kingdom – presented the main findings of a project on forklift trucks (FLTs), together with a selection of design issues arising directly out of users' experience.

The seminar was the culmination of a five-year research project, during which ETUI-REHS was involved in two studies that developed and refined a method to acquire user knowledge on selected machines, structure it and make it available in a format usable to standard-setters. The first study investigated woodworking machinery in Italy; the second investigated FLTs in Germany and Italy.

The projects' outcomes were then used to develop a wider European project across five Member States, centred on FLTs covered by the harmonised standard EN 1726-1:1998 Safety of industrial trucks – Self-propelled trucks up to and including 10 000 kg capacity and industrial tractors with a drawbar pull up to and including 20 000 N – Part 1: General requirements.

EN 1726-1:1998 *Safety of industrial trucks* was published in the Official Journal on 30 May 2000. It is being revised under the Vienna Agreement[1] as EN ISO 3691-1. A first DIS (Draft International Standard) enquiry was concluded in April 2004, and the resulting comments have been examined, together with the assessments of the CEN Consultants "Machinery" and "Noise". On 9 February 2006 a second DIS enquiry was launched, its deadline being 9 May 2006. Since some hazards have been excluded from the scope of ISO 3691-1 (i.e. noise and vibrations), CEN TC 150 has decided to add to ISO 3691-1 a European 'complement', with the objective of having a final document (ISO 3691-1 + European complement) that gives presumption of conformity to the Machinery Directive requirements. The European complement will be drafted by a new working group of TC 150. Its composition will be decided shortly.

EN 1726-1 *is a so-called Type C standard,* according to the definition adopted by CEN for the purposes of its "contract" with the European Commission. More precisely, the harmonised standards programme supporting the Machinery Directive 98/37/EC is structured as follows:

- Type A standards lay down basic concepts, principles for design and general aspects that can be applied to all machinery;
- Type B standards deal with one safety aspect (e.g. minimum distances, noise, temperatures) or one type of safeguard that can be used across a wide range of machinery;
- Type C standards cover detailed safety requirements for a particular machine or group of machines.

The machinery safety programme assists the standards users to claim 'Presumption of Conformity' with the Machinery Directive.

So far 638 Harmonised European Standards have been referenced in the Official Journal of the European Union, including 116 type A & B standards together with 522 type C standards. Some type C standards deal with complete machines and others deal with specific safety components for a given machine or particular parts of a given machine.

The list of harmonised standards supporting the machinery directive can be found at the following page: http://europa.eu.int/comm/enterprise/newapproach/standardization/harmstds/reflist/machines.html

1. The so-called "Vienna Agreement" establishes technical cooperation between ISO and CEN. The agreement sets out two essential modes for collaborative development of standards: the mode under ISO lead and the mode under CEN lead, whereby documents developed within one body are notified for simultaneous approval by the other.

Key Facts

Forklift accidents have increased dramatically in recent years. Most forklift accidents involve the driver hitting a co-worker. Blocked vision, blind intersections and operator inattention are often factors in accidents that involve forklifts running over pedestrians. Most forklift fatalities occur when lift trucks overturn.

Accidents also occur when workers violate safe work procedures and fall from raised forks or from pallets on the forks used as lifts. Other accidents involve pedestrians who are struck by falling loads or get crushed between the forklift and a fixed object or other vehicle. Operators are often injured when their arms, legs or other body parts are struck or caught as the lift truck sideswipes a wall or storage rack. The following table summarises the accident data provided by the ETUI-REHS partners involved in the project on FLTs:

COUNTRIES	FINLAND	FRANCE	GERMANY	ITALY	UNITED-KINGDOM
		(between 1987 and 2003	(between 1990 and 2003)	(between 1994 and 2000)	(between 2001 and 2005)
ACCIDENTS	5 315 (between 1993 and 2001)	141 852	191 325	117 904	Partially know (3 530 for over 3-days injuries)
PERMANENT INVALIDITY	Not Know	10 823	8 905	10 354	1 563
FATAL ACCIDENTS	31 (between 1985 and 2001)	205	309	152	29

There is little doubt that forklift driving is a skilled operation, requiring constant vigilance and alertness in regard to vehicle manoeuvring, hazard perception and safe load handling. In this connection, high-quality driver training and licensing requirements are an important step in ensuring that at least minimum aptitude and skill levels are achieved.
Good training must complement inherent design measures. Exclusive reliance on training and driver skill to overcome deficiencies in vehicle design (poor visibility and different control layout on different forklift models, for example) should be avoided.

ETUI-REHS shares the view that effective injury risk reduction can be achieved by using sound ergonomic design to reduce the ongoing performance demands made on the operator to avoid accidents. The forklift truck project was carried out with this key prevention principle in mind, in the belief that it is more effective to remove and/or control the hazard to achieve safer workplaces. This means designing work systems (the equipment, the environment and the job) so that they are inherently safe or – more accurately – expose their users to lower levels of risk. In this connection, it is worth mentioning that the safety integration method enshrined in the Machinery Directive 98/37/ EC has been further consolidated during its revision: the text recently adopted by the Council includes a new paragraph on risk assessment in the new introductory section to Annex I.

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2. Objectives of the seminar

The seminar brought together an audience of representatives of the European Commission, CEN, labour inspection authorities, social partners and European enterprises. It provided an opportunity to engage in debate on what practical steps need to be taken to help set up a permanent mechanism for feeding users' experience into a knowledge base that can guide standardisation work, market surveillance activities and Community initiatives to strengthen the legislative framework regulating the single market.
The two distinct legislative frameworks regulating the working environment and products moving within the Single Market should complement each other. Time and again ETUI-REHS has stressed the need to mount research projects aimed at achieving a better understanding of the relationship between the risk assessment required of manufacturers by the Machinery Directive 98/37/EC and the risk assessment required of employers by the Work Equipment Directive 89/655/EEC.
The day was structured around two morning sessions presenting the ETUI-REHS strategy, and two sessions in the afternoon dealing with more technical standardisation issues. Three national OHS Officials involved in the ETUI-REHS forklift trucks project were invited to present their case studies to illustrate how machinery design shortcomings could be successfully revealed by applying the ETUI-REHS methodology based on the "feedback" method developed by Fabio Strambi, Director of the OHS service at the Local Health Authority Unit (USL) in Siena.

This publication is based on speeches and comments made during the seminar sessions and the round table discussions that followed them.

Message from the Chairman The European Metalworkers' Federation (EMF) represents the economic and social interests of workers in the metal industry at European level. The great majority of metalworkers use and construct machines: this explains our interest in the ETUI-REHS strategy intended to progress toward a real involvement of workers in the design of the equipment they use every day. This objective can be achieved by bringing workers' experience into standardisation. Workers are the people who know the job and working conditions best; they are also the ones bearing the health and safety impact of machinery defects and shortcomings. Their insights into machinery health and safety issues are therefore essential. Recent trade union experiences have shown the promising future of exploiting workers' knowledge to improve equipment design and use. EMF is convinced that more opportunities must be explored for collaborative work between engineers, employers, workers, manufacturers, researchers and governments who can all contribute to better health and safety through the consideration of design issues. This will be a high priority for many years to come, as part of the constant search for new initiatives to further drive down the rate of machinery accidents at work. **Bart Samyn.**

Message from the ETUI-REHS Director This seminar is the culmination of a longstanding research strategy whereby we had the privilege of working with national partners and bringing European standardisation closer to the world of users. Even if ETUI-REHS currently has a limited role in the CEN system – following the work of TC 114 and TC 122 – we build bridges day after day to better communicate and exchange information with standard-setters. The cases logged in many European workplaces show us that trade unions can be the eyes and ears of CEN when it comes to health and safety matters. People who could lose their lives at work have a right to information, consultation and participation in the design of the work system as a whole, in its environmental, organisational and technological dimensions.
In this connection the ETUI-REHS strategy seeks to move from workplace experience to better machinery design. Being aware of the limited resources available to standard-setters and policy-makers, we wish to keep the debate alive among the different stakeholders to search for win-win procedures, opportunities and mechanisms, whereby business and productivity pressures go hand in hand with the highest level of social protection dictated by the European Union Treaty. In the search for sustainable mechanisms to benefit from machinery users' experience, ETUI-REHS will put forward structured proposals to standard-setters and policy-makers, in order to construct a new policy framework tailored to trade union research objectives. **Marc Sapir.**

3. Feedback, the method agreed with the project partners

Fabio Strambi, European Ergonomist, Director of the Occupational Health and Safety Service, A. USL 7 Siena, Regione Toscana.
Massimo Bartalini, Safety Officer, Occupational Health and Safety Service, A. USL 7 Siena, Regione Toscana.

The methodology agreed with the ETUI-REHS project partners aims at improving Type C standards by means of user feedback. To achieve that objective, it was decided to use the Feedback Method, already demonstrated to be a valid tool for accumulating users' knowledge, structuring it and making it available to standard-setters.

Background

Following a data collecting project run in cooperation with the Swedish union LO in 1997, ETUI-REHS in 1998 commissioned SindNova, an Italian trade union institute, to develop a research project to involve workers and firms in assessing the effectiveness of technical standards on the safety of woodworking machinery.
The project was carried out in 1999 in Tuscany, Italy, by Fabio Strambi and colleagues from the Siena Local Occupational Health and Safety Unit (USL)[2]. The outcomes were published under the title: "Ergonomics and technical safety standards: users' experience and suggestions. Safety of woodworking machinery."

The project, run in Val d'Elsa, Tuscany Region, aimed to introduce a participatory model in a specific high-risk industrial environment, collecting input from machinery users and integrating it into a strategy for improving machinery technical standards.

2. Fabio Strambi *et al.* "Ergonomia e norme tecniche di sicurezza: il contributo degli utlizzatori. La sicurezza delle macchine per la lavorazione del legno", Franco Angeli Editore, Milano 2001.

In 2003 the Bilbao Agency sponsored the "Feedback" Methodology[3] in the context of the SME Funding Scheme 2003-2004, when Italy (Regione Toscana) and Germany (GrolaBG) decided to apply "feedback" to forklift trucks. This project was carried out in 29 SMEs where a total of 192 forklift trucks were used.

The feedback method

Collection of machine documentation (Machine Dossier)

The feedback method is applied whenever stakeholders identify a machine (and a corresponding harmonised standard) which merits closer examination and analysis. The first step of the method is to collect any available technical documentation on the machine under review, so as to be aware of the main safety features (i.e. normal and abnormal use, residual risks).
In this preliminary phase safety experts assemble a "machine dossier", which in summary includes – whenever available – information on: relevant harmonised standards; safety guidelines elaborated by technical bodies or research organisations; statistics on undesired events associated with the machine (together with any specific accident investigations); safeguard actions against the machine; market surveillance information; information provided by the machine manufacturer about the territorial/geographical diffusion of the machine and its different models and/or configurations; instructions accompanying the machine.

Identification of companies and workplace inspections

After identifying the territory and the production sector where the method will be applied, safety experts select the companies/enterprises to be inspected and where skilled machine users will be recruited; trade unions and employers' associations help with this step.

Inspections are carried out by using forms containing the following elements: general company data; description of working environment where the machine under investigation is used and the relevant working methods; characteristics of the machines used in the company; information on accidents (and near misses) which have occurred in the company and involved the machine in question; information about the training provided for workers assigned to operate the machine.

This information will be used during the job ergonomic analysis, carried out in working groups, when users will be guided in reconstructing their job based on machine activities carried out daily.

Working groups

Working groups (WG) are then formed, each group being made up of 5 to 9 users: besides drivers, the group may include company engineers, craftsmen or employers with knowledge and experience in the use of the machine (ideally these people should be the ones who use the machine in the normal course of production).

It is essential that the participants come from different working situations, with at least three operators from different companies, in order to attenuate the inevitable specificities connected with a single company, and to provide a job reconstruction representative of the daily tasks across different working contexts. If working groups represent different productive sectors and/or territorial areas, diverse practices and habits in operating the machine under investigation and different methods of organising production could be brought to light.

The working group activity is based on two preliminary steps. Firstly, the experts provide the users with basic documentation (the relevant technical standards, the description of the most important residual risks indicated by the manufacturers in the instructions, a description of the dynamics of the most serious accidents, etc.). Secondly, each working phase is split into basic operational tasks, on the basis of the information collected during the company inspections, from the initial setting-up operations to maintenance and cleaning operations after the work is finished.

After these two preparatory phases, the leading experts introduce the job ergonomic analysis through which the group will reconstruct the daily work phases and then start a systematic analysis of each work phase with the help of a table like the one in Fig. 1 (see p.6).

For each work phase, the job tasks are identified, and for each of them the following elements are put in writing:

- the individual operations and the methods of executing the task;
- the training, knowledge and experience that the worker must possess in order to execute such operations competently;
- the risks associated with executing the task;
- suggestions for prevention and any safety procedures to adopt in order to avoid accidents.

Working groups (WG) are then formed, each group being made up of 5 to 9 users: besides drivers, the group may include company engineers, craftsmen or employers with knowledge and experience in the use of the machine.

3. Presented at the International Conference "Design process and human factors integration" – Nice, 1-3 March 2006.

Job phase _____

Task sequence	Operating conditions (for execution of task)	Knowledge (necessary for optimal execution of task)	Risk associated with task execution	Suggestions for prevention

Fig. 1 Table used to record the job reconstruction carried out by the working group

It is important to note that the experts leading the discussion allow the workers to act as key players in evaluating their own working environment. The experts' role consists in supplying information, speeding up the participants' contribution to the reconstruction of the job, and guiding the users' evaluations of the safety issues and possible preventive action.

Written WG document and its validation

At the end of the process, the researchers transfer the results onto a "legible copy" of the Feedback grid and deliver it to every participant for their validation and/or for any corrections/additions. This step is essential, not least so that the more reticent members have an opportunity to contribute their opinions and suggestions. The indications provided by users will be adopted and marked in the final report. The consolidated and validated WG report represents a basic document that can be fine-tuned to better highlight lessons learned and suggestions.

Project overview and final technical report

The final phase of the Feedback Method consists in the drafting of the project overview and the final technical report. The project overview describes all the different project phases and outcomes, from the assembling of the machine dossier to the consolidation and validation of the WG report.

Afterwards the researchers draft a synthesis of the WG report, drawing together and presenting the prevention indications and suggestions that emerged from the WGs, in order to facilitate the transition from words to deeds. This final technical report is structured in such a way that its content is addressed to:

- standard-setters, for modification and improvement of the standard on the specific issues that emerged from the WG (i.e. ergonomics, maintainability, operating modes);
- designers and manufacturers, in order to assess the feasibility of the WG suggestions and compare them with the current state of the art;
- employers/users, so that they can improve and manage maintenance operations, provide effective safety training and adequate job organisation; in order to improve the purchase and safe incorporation of work equipment into the company-specific environment;
- workers, so that they pay careful attention to the safety indications supplied by the manufacturers and by the users themselves.

This final technical report therefore becomes the centrepiece of the job carried out and constitutes a technical synthesis of the contributions made by users both during the inspections and within the working group debates. The concluding report is a synthesis of the suggestions to be addressed to all stakeholders involved in machinery safety issues: standard-setters, manufacturers, employers, workers' representatives, inspection bodies, etc.

Results

The following table summarises the main results obtained by applying the "Feedback" method to forklift trucks.

Main proposals and suggestions - **Forklift trucks**	Technical standard
Improvement of active and passive means from overturning risks Improvement of devices which keep the driver in his seat.	EN 1726-1:1998; clause 4.1.11, 5.2.3, 5.6.3.4, 5.7, 5.8, 7.2.2, 7.3
Improvement of battery handling methods. Harmonisation of travelling and stopping control devices (placing and typology) with layout used in cars.	EN 1726-1:1998; EN 1726-1:1998; clause 1.7.4, 5.4.2, 5.4.2.1 EN 281:1988; clause 7
Harmonisation of control levers for every type of forklift truck. Control devices must be designed so that, where a risk is involved, the desired effect cannot be achieved without an intentional operation.	EN 1726-1:1998; clause 5.4.4, 5.4.5
Fastening and insulation of battery bonnet.	EN 1726-1:1998; clause 5.5.3, 5.7
Improvement of access to operating position. Compulsory handles.	EN 1726-1:1998; clause 5.7.2

Final observations

"Feedback" confirms the need to integrate machinery design with information based on the real experience of machinery operators so as to improve its quality and reliability. The application of "Feedback" to machinery highlights what lessons standards bodies could learn from participatory approaches to equipment design based on the knowledge that final users possess on the equipment they work with.

Application of the "Feedback" method makes it possible both to collect contributions from machinery users for the improvement of the specific reference standard and at the same time to prepare a system to monitor the effectiveness of any improvements introduced. In connection with this method an optimal solution would be the establishment of "observatories", located in several Member States, able to collect reactions from users of the same machine in different production sectors.

Such a system of continuous feedback, between standard-setters and users, is therefore the only viable method – derived moreover from human physiology – of achieving and maintaining an improvement in safety and in health safeguards for machinery users/workers, by means of a continuous adaptation of the standards.

Using this method it is possible for worker representatives or, more generally, for representatives of consumers and users to set about collecting indications for improvements in various types of machinery.

The recommendations can then be forwarded to the appropriate technical commissions and committees.

The key factor for the effectiveness of the method, however, is the human factor and above all else the full cooperation of expert users and technicians. They must not only be familiar with the machine under investigation but also be able to guide the working group, collect the information and express it in suitable language for the formulation of proposals to be addressed to the standard-setters and manufacturers.

The German-Italian Project 5711/IT on forklift truck safety – under the SME Funding Scheme 2003-2004 sponsored by the Agency of Bilbao – was carried out by the following experts:

- R.CIANOTTI, M.N.TINI (ISPESL – National Institute of Occupational Safety and Prevention – Department of Safety Technologies, Roma/Italy)
- C.STANZANI (SindNova, Roma/Italy)
- F. ROVEDO (Grola BG, Mannheim/Germany)
- G. TOGNOCCHI, A. ZALLOCCO (A. USL 4 di Prato – U.F. PISLL, Prato/Italy)
- M. MASI (General Directorate for Health and Solidarity Policies – Regione Toscana, Firenze/Italy)

The Project holder was IAL-CISL, the CISL trade union institute for professional training.

4. National data collection exercise

4.1 United Kingdom

Phil Papard, Head of Product Safety Section, Health and Safety Executive (HSE)

The working group agreed that subject FLTs should be CE-marked and well maintained: this would ensure that the project was able to focus on design issues, rather than issues relating to maintenance of the vehicle.

The data collection exercise on FLTs was carried out under the supervision of the Project Manager Clare Field, Health and Safety Inspector at HSE, and the Project Facilitator Tim Harris, working in the Workplace Transport Safety policy team at HSE. A UK working group was set up comprising representatives from the HSE, local authorities, the operator training industry, FLT manufacturers, FLT operative employers and a trade union representing FLT operators.

Members of the working group undertook to identify dutyholders who would participate in the project, relying on the cooperation of dutyholders. The working group agreed that subject FLTs should be CE-marked and well maintained: this would ensure that the project was able to focus on design issues, rather than issues relating to maintenance of the vehicle. The working group also agreed that subject operators should have been trained to the standard set out in the UK Approved Code of Practice[4] for training operators of rider-operated lift trucks.

Members of the working group interviewed FLT operators in their workplace, using open questions to identify design features the operators considered affected their safety. Background information on the workplace and FLT was also recorded. The interviews resulted in the completion

4. HSE booklet L117 "Rider-operated lift trucks: operator training"

of questionnaires that were collated by the HSE: a second working group was convened to discuss the findings and the methodology used in the UK, and to construct an 'enriched' Job Ergonomic Analysis.

A total of 21 operators were interviewed across 11 workplaces, where nearly 90% of the FLTs were manufactured in 2002-2005. Nearly 90% of the comments were related to vehicle design: the majority of them related to visibility, controls and operator comfort. Some issues are not new, but some are, and are being made publicly available for the first time. More precisely:

- Visibility – screen wipers and motor positioned at the top centre of the windscreen.
- Controls – lack of space to operate foot pedals especially when wearing safety shoes.
- Operator comfort – concern about back injury from twisting to access/egress vehicles.

Certain comments related to areas not covered by standards, like overhead and side weather protection:

- Quality and suitability varied
- Concern was expressed that materials used scratch easily when cleaned or when passed under plastic strip curtains.

With some refinement – concluded Phil Papard – the method could be applied to other types of machinery. The project has produced data which deal with the more subtle factors affecting operator safety, such as ergonomics. Accident data are more likely to focus on issues which do not affect the day-to-day comfort of the operator. However, over time day-to-day comfort issues may have a significant effect on safety, such as through fatigue and musculoskeletal disorders.

The working group all thought the partnership working was successful, and could be improved by involving more external stakeholders at an earlier stage. The method could be taken forward and improved by trade associations and unions undertaking the interviewing: interviewing operators was a time consuming but effective way of obtaining useful, detailed information. And standardisation needs information to be fed back from the users, in particular to minimise ergonomic residual risks.

4.2 France

Geneviève Rendu, Machinery Safety Bureau, Ministry of Employment, Social Cohesion and Housing

Recital 16 of the Machinery Directive sets out the principle of employers and employees making a necessary contribution to the process of developing standards.

Article 5 of the Directive specifies that 'Member States shall ensure that appropriate measures are taken to enable the social partners to have an influence at national level on the process of preparing and monitoring the harmonised standards'.

The objective is thus clearly stated: workers are entitled to their say on the design of machinery. This is self-evident given that it is the workers, after all, who are the end-users of the machinery and the first to have accidents or suffer from occupational diseases.

The precise manner of their participation is left to the Member States to determine. So it is up to the national public authorities to take the initiative in this respect.

But what should they do, and how?
The French Ministry of Employment has explored several options:

- The option of involving employees in the process of developing standards in the manner proposed by the standardisation system. We quickly came to see this option as something of a fallacy:
  - employees and their representatives do not have the requisite resources, time, availability or skills to take part in activities of a highly technical nature that are clearly extremely time-consuming;
  - the world of standardisation on the basis of consensus between 'interested' parties is alien to French workers and their representatives. They are used to a world of negotiations or conflict between 'representative' parties;
  - those involved in the standardisation process, mainly the manufacturers, consider their participation to be more legitimate than that of the workers.
- The option of using an incident report form (fiche d'alerte) to channel feedback to the Ministry of Employment. This option was abandoned because it was not 'realistic'.

This is why the Ministry of Employment followed with the greatest interest the ETUI-REHS initiatives to gather user feedback at European level using specific methodology.

- The survey option. This consists of asking a consultant to carry out a survey of workers' concerns in the workplace and to draw conclusions for machinery design. This option was first implemented at national level with a study of household refuse collection trucks. We viewed this as the most promising option.

This is why the Ministry of Employment followed with the greatest interest the ETUI-REHS initiatives to gather user feedback at European level using specific methodology.

We considered that the choice of forklift trucks for a trial of this feedback method was highly suitable for several reasons:

- the importance of accidentology;
- the existence of a mandate given to CEN in the 1990s to amend the European standard, not only to guarantee better protection for the driver if a truck overturns, but also to prevent the risk of overturning;
- what is at stake in the revision of European standards under the Vienna Agreement.

The Ministry of Employment was involved in the operation in two ways:

- examining accidentology data relating to the use of forklift trucks;
- financing a survey for gathering information in companies.

Accidentology in France

• Statistical data

For just under ten years, the number of accidents at work has remained largely constant, with around 8,000 to 9,000 accidents annually, of which 10 to 20 have been fatal and 500 to 800 have resulted in invalidity.

• Qualitative data

Following an analysis of nearly 200 reports of serious and/or fatal accidents provided by the Labour Inspectorate and involving forklift trucks between 1993 and 2003, the following five major risk categories have been identified:

> The risk of a truck overturning and crushing the driver or another person;
> The risk of a truck colliding with pedestrians or objects;
> The risk of the load falling off;
> The risk of a truck moving unexpectedly;
> The risk of falling due to the use on a truck of an adapted, improvised working platform.

The Ministry of Employment drew the following conclusions:

A proportion of these accidents could have been avoided if the employers had taken preventive action based on risk assessment, the choice of appropriate equipment, organisational measures and driver training in accordance with Framework Directive 89/391/EEC and Directive 89/655/EEC on the Use of Work Equipment.
However, given the prevalence of certain kinds of accidents, it is also reasonable to highlight deficiencies in truck design, since the standards do not cover all situations of 'atypical' use which can, nonetheless, be anticipated.

In-company survey carried out by Célidé[5]

• Methodology

The reliability of the results of this type of survey depends on the methodology, the survey locations and the people surveyed.

> The methodology used was that of ETUI-REHS and combined questionnaires, interviews, visits to companies and working groups. Two companies participated in the full survey (interviews, questionnaires, visits and working group), while the other companies accepted the questionnaire (without interviews) or vice versa.
> The choice of survey locations reflected the diversity of situations:
- a company from the nuclear sector with 3,300 employees using around 50 trucks;
- a tyre manufacturer with 1,500 employees using around 70 trucks;
- a paper manufacturer with 750 employees using around 50 trucks;
- a warehouse of a major distribution company using over 100 trucks.

> Responses were gathered from a heterogeneous mix of people:
- in companies, responses came from people at different levels of the company hierarchy and from a variety of departments: truck drivers, safety officers, ergonomics officer, training officers, ergonomist, works manager, company doctor, trainer, maintenance supervisor, etc;
- in the training centres, responses came from truck drivers and trainers;
- people from outside institutions (labour inspectors, prevention services etc.).

• Results

Requests from the users for improvements to truck design relate to the following main points:

> improvement of aids to safe driving (stability, visibility, limit on speed integral to design, etc.);
> improvement of the design of the driver's cab;
> improvement of the conditions under which maintenance is carried out.

Conclusion

> Methodology: the main advantage of the methodology proposed by ETUI-REHS is that it necessitates comparison and cross-checking of responses from different people. Conclusions arrived at by people on the ground can therefore be considered reliable.

> In considering the results of this methodology applied to forklift trucks, we have noted two prominent points:
- some of the concerns and proposals voiced by the users corroborate the findings of the Ministry which were based on a single study of serious occupational accidents. The issues involved are aids to driving, visibility and stability;
- other concerns and proposals voiced by the users substantially supplement this single study of serious accidents. Issues involved are design of the driver's cab and improving the conditions under which truck maintenance is carried out.

On the basis of these points, we can conclude that:
- this trial is conclusive and could be repeated for other types of machinery;
- a summary of the various contributions ought to serve as valuable input for the revision of forklift truck standards currently under way internationally within the Vienna Agreement – providing, of course, that those carrying out the standardisation process agree to consider the concerns of people on the ground.

5. Françoise Habasque and Eloise Galioot, "Témoignages d'utilisateurs de chariots automoteurs. Etudes demandées par le ministère de l'Emploi et de la Solidarité et l'AFNOR", Célidé, November 2005. The Celide is a bureau of experts established by the CFDT (French Trade Union) for the purpose of providing support to workers representatives involved in occupational health and safety.

4.3 Finland

Tapio Siirilä, Safety Engineer, Occupational Health and Safety Administration

In Mr Siirilä's view, FLTs represented a good choice for carrying out such a project, given their diffusion in so many different working environments. The available accident data tell us that in the period 1993-2000 as many as 5,315 accidents were registered, with 32 fatal events from 1985 to 2002. Falling of load, tipping over and pedestrian hitting were the most common causes. Interviews also disclosed high numbers of near misses.

Mr Siirilä recalled that stability – one of the most relevant safety issues – is extensively dealt with in normative annexes B to H of EN 1726-1. Interviews with users indicated the need to review stability testing requirements by taking into account the real conditions of use (at maximum truck speed and maximum load), especially when it comes to the truck's dynamic behaviour when driving and turning.

A second critical safety factor is the driving speed. Here, operators expressed the wish to have – whenever possible – FLTs equipped with a device determining the speed on the basis of the route or area where the truck is travelling. The presence of an automatic limitation of the truck's speed depending on the turning radius and load mass and elevation was also mentioned during interviews.

Poor visibility is one of the major safety problems with forklift trucks. In Mr Siirilä's opinion the requirements laid down in standard EN 1726-1 (paragraph 5.10.1) are quite vague. During the interviews design proposals (open structure of the mast, a rotating seat and controls for backward driving, and a closed circuit television system) were raised.

Control devices – whose requirements are considered too general and vague by Mr Siirilä – were commented on at length by FLT users. As for all mobile machinery, control devices play a crucial role for FLTs. Their use must be self-evident, their layout must ensure an instinctively correct operation, and they must be adjustable to suit different users. In this connection, Mr Siirilä collected users' complaints about the different layouts of pedals allowed by EN 1726-1 by means of the normative reference to EN ISO 21281[6].

Control devices – whose requirements are considered too general and vague by Mr Siirilä – were commented on at length by FLT users. As for all mobile machinery, control devices play a crucial role for FLTs.

By the same token, some lever configurations increase the probability of operator confusion and consequently increase the likelihood of errors with potentially dangerous consequences. Mr Siirilä, on this issue, proposed that EN 1726-1 be reviewed by adding normative references to the relevant ergonomic harmonised standards dealing with the design of control operations and control devices.

Other proposals were put forward by the operators and users interviewed in Finland. Users asked for better design of operator access and egress (steps were considered easier to use); they expressed the opinion that all FLT should have a cabin (against noise, uncomfortable temperatures, impurities in the air, and of course as a protection against FLT overturning or collisions); the maximum allowed opening of overhead protection was asked to be smaller; users also asked for better design for maintenance, to ease access to maintenance locations and the handling of the battery.

Mr Siirilä ended his contribution with a comment on loading control. Here he pointed out that the standard EN 1726-1 still does not cover the loading control requirements of the Machinery Directive (clause 4.2.1.4 of Annex I), as explained in the informative Annex N. In this connection, Mr Siirilä emphasised that the ETUI-REHS strategy could help provide standard-setters with additional data for the purpose of reviewing EN 1726-1 and covering this critical safety issue.

6. ISO 21281:2005 Construction and layout of pedals of self-propelled sit-down rider-controlled industrial trucks. Rules for the construction and layout of pedal.

5. Round table

The round table that followed the seminar sessions were moderated by **Ulrich Bamberg**, from the Office of the Social Partners (Employees) in the Commission for Occupational Health and Safety and Standardisation (KAN), and by **Roberto Cianotti**, Director of the Safety Technology Department of ISPESL, the National Institute for Prevention and Safety at Work. Contributions were made by representatives of employees, employers, policy-makers, standard-setters, and by national OHS officials:

- **Norbert Anselmann,** Head of Unit "Standardisation", DG Enterprise and Industry, European Commission;
- **Angel Fuente Martin,** Principal Administrator, DG Employment and Social Affairs, European Commission;
- **Martin Eifel,** Chairman of the Working Group of Committee 98/37/EC Machinery, DG Enterprise and Industry, European Commission;
- **Ian Fraser,** DG Enterprise and Industry, European Commission;
- **Corrado Mattiuzzo,** DG Enterprise and Industry, European Commission;
- **Brenda O'Brien,** Brussels Liaison Officer, European Agency for Safety and Health at Work;
- **Claudio Stanzani,** President of the Trade Union Research Institute SindNova, Rome, Italy.
- **Lennart Ahnström,** Chairman of the Working Group MACHEX of the Senior Labour Inspectors Committee (SLIC);
- **Pascal Etienne,** Director, Machinery Safety Bureau, Ministry of Employment, Social Cohesion and Housing, France;
- **Gerhard Steiger,** Rapporteur to the CEN BT[7] of the Machinery Safety Sector, CEN;
- **Stefan Joannin,** Programme Manager for Safety of Machinery at the CEN Management Centre;
- **Werner Tannhäuser,** Chairman of the ISO Technical Committee TC 110 'Industrial Trucks', senior member of CEN TC 150 'Safety of industrial trucks';
- **Franck Gambelli, Olivier François,** Mouvement des Entreprises de France (MEDEF), France;
- **Doug Russell,** National Health and Safety Officer, Union of Shop, Distributive, and Allied Workers (USDAW), United Kingdom;
- **Georges Fleury,** Safety Officer, AREVA[8], France;

The round table discussed the implications of the ETUI-REHS strategy and how this may be translated into effective technical and policy initiatives for the future. This section includes a summary of some of the round table members' contributions.

7. The CEN BT (Technical Board) is the technical body which controls the full standards programme and promotes its speedy execution by the Technical Committees (TC), the CEN Management Centre (CMC) and other bodies.
8. AREVA NC is the French Government-owned nuclear group, suppliers of uranium throughout the world, active at every stage of the nuclear fuel cycle in the industry, from mining to waste management.

Messages from the Chairmen

Ulrich Bamberg

"Since 1994 the Commission for OH&S and Standardisation (KAN) has been monitoring the standardisation process to ensure that standard-setters devote sufficient attention to the needs of OH&S. At KAN we share the ETUI-REHS commitment to promoting public debate on the role of standardisation to improve work equipment safety. In our organisation we value the exchange of opinions of all the stakeholders involved in the functioning of the Single Market. In fact, the OH&S interests of various public institutions – the social partners, the State, the statutory accident insurance institutions and DIN, the German national standardisation body (members of KAN) – are collectively represented in opinions on current and planned standardisation projects.

Coming from this background, we agree with ETUI-REHS that occupational health and safety interests are represented poorly, if at all, in the European and international standards committees. The result is that requirements regarded by OH&S as necessary and which are pursuant to the provisions of the Machinery Directive are often given at best inadequate consideration.

For this reason we regard the forklift truck project as a valuable experience, indicating how the social partners' experience can improve the quality of machinery technical standards. Greater weight should be given to safety in the area of industrial truck standardisation: this is why KAN welcomed the possibility to undertake the German-Italian forklift truck safety project supported by the Bilbao Agency in 2003[9].

With the support of European policy-makers, ETUI-REHS efforts have the potential to establish a permanent mechanism through which social partner feedback and viewpoints may be collected, coordinated and fed into the standardisation process to help manufacturers produce safer equipment. "

The result is that requirements regarded by OH&S as necessary and which are pursuant to the provisions of the Machinery Directive are often given at best inadequate consideration.

Roberto Cianotti

"ISPESL has for many years supported the ETUI-REHS research methodology, so far applied to three types of machines. It is a methodology developed in line with both the New Approach and the social directives regulating health and safety at work.

We are here today to reaffirm the health and safety implications of the role given to standards by the New Approach. But we also want to stress today the role played by employers, who are responsible for the correct choice of machine and for the design of the tasks that workers will carry out using that machine.

In this connection it is important to see how the design solutions chosen by standard-setters to comply with the relevant essential safety requirements attain the objectives in terms of productivity, operator health and safety, user-friendliness. We believe that to improve the quality of standards, the wealth of information made available by ETUI-REHS is a necessary knowledge base to be further developed and exploited.

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ISPESL follows the activity of CEN TC 150 through its Italian 'mirror committee'. We recognise how standards are evolving. This evolution in terms of design content should be accompanied by the same level of attention to issues related to information for users, and should not prevent us from taking into account the role played by training. In this connection the ETUI-REHS strategy can help improve both the design dimension and the training obligations incumbent on employers."

9. A summary of the project has been published in KAN Brief 1/05 (http://www.kan.de/pdf/brief/eng/2005-1-Gabelstapler-e.pdf). The article's author is Franco Rovedo, working at GrolaBG, Project Facilitator of the German data collection exercise.

Some discussion points :

- **Social stakeholders' influence on standardisation: which way forward?**
- **Participation at national and European level**
- **Policy issues: do we need structural changes?**

Social stakeholders' influence on standardisation: which way forward?

The discussion on the social dimension of standardisation under the New Approach, and the difficulties faced by trade unions struggling to help workers give their input into the European technical work at CEN, was introduced by Claudio Stanzani[10]:

"Workers' involvement, either direct or by means of specific representation frameworks, is one of the pillars of all European directives dealing with health and safety at work. Workers, individually and collectively, possess knowledge and experience of the technological and organisational dimensions of their work systems. This knowledge and experience, if adequately collected and valued, is indispensable to:

- Identify and assess the risks associated with the work system (work tasks, work environment, job);
- Design and improve the work system;
- Plan prevention strategies.

Worker participation is aimed at influencing a company's decision-making in relation to its health and safety obligations. Workers and trade unions have the right to conclude collective agreements with the line management in their enterprises, together with the right to be trained, informed and consulted on the prevention of occupational risks.

Experience and ergonomic culture confirm that training, information and consultation improve the competitiveness and performance of all sectors of activity; dialogue and cooperation with workers can improve the quality of line management decisions. The ETUI-REHS strategy starts from these principles, by involving workers in analysing and re-designing their own work systems.

The ETUI-REHS tool seeks to legitimise the ideas and experience that workers accumulate in doing their jobs, which they can draw on to suggest their own solutions to machinery-related problems. As a matter of fact, the ETUI-REHS toolbox for channelling users' knowledge to standard-setters aims to provide a context in which design experts can gain the practical understanding they need for successful design.

Social stakeholders' involvement in standardisation ultimately reflects the significance of a participatory design approach, an indispensable ingredient for the successful design of any work system.

Social stakeholders' involvement in standardisation ultimately reflects the significance of a participatory design approach, an indispensable ingredient for the successful design of any work system. Unfortunately, many limitations still exist. In many Member States there is almost no official provision for informing and consulting the social partners on European standards mandated under directives.

One consequence of this failure to acknowledge the trade unions' right to participate is that financial resources have not been made available. Moreover, workers' representatives find it hard to get the necessary time off to play an active part in what is a time-consuming, complex process; they are also confronted by the need for adequate technical training and the difficulty of remaining independent of the company's interests.

Finally, trade unions are facing the challenge of how to organise systematic feedback of users' experience so as to turn workplace experience into significant technical knowledge, which can then be used in framing equipment design standards and European training programmes."

10. Claudio Stanzani, in cooperation with the ETUI-REHS, supervised the German-Italian project 5711/IT on forklift truck safety carried out under the SME Funding Scheme 2003-2004 sponsored by the Bilbao Agency.

In this line of thought, **Norbert Anselmann** *recalled the importance of social stakeholders' contribution to standardisation under the New Approach:*

"The accountability of European standardisation supporting New Approach legislation – a factor in the successful functioning of the Single Market in goods over the past 20 years – is directly linked to the participation of social stakeholders, making standards more representative by strengthening the quality of the consensus they are based on.

This principle reflects the fundamental objectives set out in the Treaty establishing the European Community: to ensure high levels of protection for the public interest (in its environmental, consumer, and health and safety dimensions). As a result, the European standardisation system has a broad responsibility to industry, workers, consumers, environmental interests and public authorities, who all have a legitimate interest in the outcome of this technical work.

Ensuring that the views of all interested groups are adequately taken into account is essential. In particular, since machinery standards quantify the level of protection that the Machinery Directive seeks to provide, workers' representatives have the right to demand standards providing a high level of protection in line with the technological state of the art.

We are aware that trade union participation is not yet sufficiently well guaranteed, neither at the European Standards Organisations nor within all Member States. Although its methodology still needs some refinements to make it applicable horizontally to other products, the ETUI-REHS strategy should be presented to the 98/34/EC Committee in order to debate how to improve the mandates given to the European Standardisation Organisation (ESO) and their execution, and to include in them the mechanisms and methods envisaged by ETUI-REHS to improve the social partners' contribution to standardisation."

We are aware that trade union participation is not yet sufficiently well guaranteed, neither at the European Standards Organisations nor within all Member States.

We are of the opinion that the national dimension is the most important: through action at national level, ETUI-REHS could duplicate its achievements while trade unions could influence the national opinion building process.

CEN's commitment to openness, impartiality and consensus was confirmed by **Gerhard Steiger**, *who recalled that the key objective of standardisation is access to everyone who wishes to participate in the technical work:*

"The whole CEN system and the system functioning at national level are both designed according to this basic principle: anyone can take part in the technical work at national level and perhaps become a delegate at European level. Both tracks should now be used by ETUI-REHS to put forward the findings of this important exercise.

We are of the opinion that the national dimension is the most important: through action at national level, ETUI-REHS could duplicate its achievements while trade unions could – in several countries – influence the national opinion building process.

In this connection, it is also important to remember that national delegates are expected to represent a national opinion: this explains the importance of compromise among all stakeholders to achieve consensus at national level. The standardisation rule of consensus also applies to the findings of the ETUI-REHS project."

Trade union representatives should bring the same 'workers' feedback reports' to the national mirror committees of their NSB.

Participation at national and European level

The question of how to feed workers' knowledge into standardisation still remains. The opportunities to have a say in the national and European dimensions were explained by **Stefan Joannin**, *who first of all recommended consolidating workers' feedback and knowledge at national level by interacting with national mirror committees. He added that:*

"This way of operating does not preclude the possibility of acting directly at European level, speaking with one voice about the results of such experiences, since ETUI-REHS, as a CEN associate member, receives draft standards at the CEN enquiry stage and could submit the com-

ments at this stage. The question remains as to how effective this 'track' would be.

There is great value in consolidating the concerns of workers from all Member States and centralising it within ETUI-REHS; that is why the methodology is worth exploiting further. For it to be effective, the consolidation of comments and input from workers should be fed through every National Standards Body (NSB) participating in that domain.

Trade union representatives should bring the same 'workers' feedback reports' to the national mirror committees of their NSB. In so doing, when the CEN working group itself meets, there will be a better chance of having the concerns and recommendations put forward in that workers' report taken on board.

In conclusion, workers' input should be put forward using as many channels as possible, to increase its chances of being considered during discussion in the European working groups. Having a trade union representative present at the relevant working group meetings could help in this respect."

The public enquiry, the work of the national mirror groups, the fact that all stakeholders can contribute to the building of a national position, are all positive elements that should not be neglected.

The national and European dimensions of participation were further analysed by **Ian Fraser**, *who drew attention to the human resources dimension:*

"The most important work on any standard is done twice: the first, most important work is to draft the standard. Once the initial drafting has been done modifications are possible, but the basic content of the standard is often largely determined. The second key phase is the enquiry on the standard, when comments made by the national standardisation bodies are discussed and taken into account.

Those two phases are not carried out at national level but at European level in the CEN WGs. In this connection, we have noted the frustration of stakeholders, including the public authorities, who have been trying to influence the standardisation process over the last ten years, when they are not directly present in the WG drafting the standard and dealing with the comments received during the enquiry – then the best that can be achieved is a marginal influence over the content of the final standard.

The public enquiry, the work of the national mirror groups, the fact that all stakeholders can contribute to the building of a national position, are all positive elements that should not be neglected.

However, to exercise real influence, there is no alternative to being present at the key meetings to defend your point of view. Trade unions are in a weak position here, as participating in meetings requires not only time and financial resources, but also human resources: experts who can be effective advocates of their positions, able to stand up to the pressure and criticism of the other interest groups represented in the WG.

The ETUI-REHS experiment has so far produced an impressive amount of useful data: we believe that if the methodology is applied to other classes of machinery, similar good results will be achieved.

The challenge now is to see how this information can be introduced into standardisation. We consider that it is not sufficient to have workers' feedback stored in a library or made available in written form. There must be people putting proposals based on workers' feedback on the table during WG meetings and arguing the case meeting after meeting. Other interested parties, who are physically present at the meetings, put forward their own agenda and argue their views, strongly defending their interests, and will probably leave aside the trade union document.

The question remains as to how the CEN system can help integrate workers' feedback, taking into account the challenge represented by direct participation in WGs and TCs."

When it comes to the financial dimension of participation, other stakeholders face difficulties, as **Stefan Joannin** *indicated:*

"Maintaining a high level of participation from industry in standardisation is not always easy. Experts having participated for many years are retiring, and it is not always easy to find new experts to replace them. The cost for industry is not negligible. SMEs may find it hard to invest their resources in allowing operators to participate in interviews and working groups, collecting their opinions and preparing draft recommendations. One can only hope that the ETUI-REHS exercise has shown them that this system can work, and is worth the investment."

The need for trade unions to ensure their influence by using different channels - influencing the positions of National Standardisation Bodies (NSBs) and mirror WGs and TCs, via national public authorities - was shared by **Martin Eifel**, *who recalled the importance of taking into account the views of all stakeholders:*

"When it comes to the stakeholders participation and influence, the standardisation world embraces a wide range of situations. On the one hand, the ideal situation where NSB representatives speak on behalf of all stakeholders; on the other, there are situations where an interest group has been able to influence the NSBs in a number of Member States and achieve a near monopoly on what will be actually put into the standard.

One example would be multinational companies that have the resources to invest in several different NSB representatives, thereby having a lot of influence. Such unbalanced situations are against the principles of standardisation, which should not favour the interests of a particular supplier or country."

One example would be multinational companies that have the resources to invest in several different NSB representatives, thereby having a lot of influence.

Some success stories in terms of balanced involvement in standardisation can be told by stakeholders involved in the use of specific machinery like meat machinery and printing machinery.

The heterogeneity displayed by the standardisation world in terms of balanced representation was confirmed by **Doug Russell**, *who also provided hands-on information on the situation in the UK, where:*

"There is very little involvement of the trade unions in the NSB, and there is even less involvement of employers who buy equipment to be used at work. However, some success stories in terms of balanced involvement in standardisation can be told by stakeholders involved in the use of specific machinery like meat machinery and printing machinery. In the UK, there are large numbers of FLTs in bakery and in the paper-making industry.
In these areas there has been a strong tripartite stakeholder group involving employers/trade unions/HSE officials. Through this group, a consensus was developed very quickly about what the British line was on what we wanted to see in the standard, so there was only marginal dispute amongst those stakeholders themselves."

This "success story" caused **Lennart Ahnström** *to emphasise the role played by public authorities but also the difficulties they face:*

"In addition to users' feedback into standardisation, the experience gained by authorities through market surveillance is essential. However, public authorities' participation in standardisation is likely to decrease as time passes because of the lack of human and financial resources. Therefore, if we really want the experiences of users of different machines to be incorporated into standards, we must find a pragmatic solution. And the solution involves the role of national mirror committees and WGs. The question remains as to how to pass information to the mirror committees: a certain degree of centralisation of this user information is necessary, because small countries could find it difficult to make such information available to national bodies."

If we really want the experiences of users of different machines to be incorporated into standards, we must find a pragmatic solution.

The discussion then moved on to the national dimension of standardisation. Here **Stefan Joannin** *depicted possible practical steps that ETUI-REHS might want to take towards NSB. He began by observing that technical changes are feasible even after the draft standards have been written:*

"Of course, changes and modifications have a better chance of being included in a draft standard when they are requested by many stakeholders. That is why it is important that the users' concerns raised by reports such as the one presented today by ETUI-REHS, be well known to the NSBs.

With this objective in mind, such reports could first of all be presented to the mirror committees established within the NSBs, where they exist, of the Member States taking part in the ETUI-REHS project. This would increase the chances of the users' insights being included in the positions of the NSBs when they make comments or vote at the CEN enquiry or formal vote stages."

WGs welcome concrete proposals and recommendations, if possible with a range of technical solutions to be debated and agreed on.

However, it was pointed out by **Werner Tannhäuser** *that users' insights should be presented in the form of concrete proposals:*

"In standardisation work, making general comments on the quality of standards is very often useless. WGs welcome concrete proposals and recommendations, if possible with a range of technical solutions to be debated and agreed on. Failure to do so would imply a significant delay in managing such information, since someone else would be obliged to extract factual proposals from generic suggestions."

This observation was supported by **Tapio Siirilä**, *who stressed the need to attend meetings to make the most of users' insights:*

"In my experience with CEN and ISO working groups I've seen the amount of technical work that experts have to carry out: they meet for a few days, a few times a year, with the task of dealing with a large number of comments coming from the national standardisation bodies. Only comments including detailed proposals for modifications are seriously taken into account.

And most importantly, it is necessary to be sitting in the meetings of the working groups, so as to explain the proposed modifications and answer the questions, criticisms and comments: taking part in the discussion is essential.

Therefore, the crucial step of the ETUI-REHS methodology is not only the elaboration of technical recommendations to be presented to standard-setters, but also a scheme to ensure the participation of experts supporting and advocating the users' concerns and recommendations. And this trade union participation could prove very difficult when it comes to machines like FLTs, whose standards are elaborated in the framework of the Vienna Agreement at international level."

The difficulty of influencing standards that cover the global market was confirmed by **Werner Tannhäuser**, *who observed that:*

"Standardisation activity on FLTs is probably one of the best examples of the role played by globalisation. FLTs are sold worldwide, in countries with very diverse safety, technological and regulatory cultures.

Experts in ISO and in CEN have the difficult task of producing standards that reflect the consensus of different players operating in different working environments. It is true that the elaboration of FLT standards is a difficult exercise at European level. Moving to the international dimension, it is even more difficult to agree on some safety design issues. For this reason, participation and a continuous exchange of views is primordial. And when research projects like the one carried out by ETUI-REHS produce suggestions and recommendations, they should be integrated into draft standards as soon as is practicable."

It is true that the elaboration of FLT standards is a difficult exercise at European level. Moving to the international dimension, it is even more difficult to agree on some safety design issues.

"And whenever practical recommendations are made, the CEN and ISO systems are able to take due account of them" *continued* **Gerhard Steiger**, *who confirmed that:* "many of the specific issues raised at this seminar have been brought up in the WGs and TCs over the years, and this is reflected in the quality of CEN standards. CEN standard-setters are aware of the importance of feedback on the use of existing safety standards.

Workers' concerns are taken into account at present, but it is true that the situation can be improved by making this integration of users' concerns more systematic.

This is a requirement of CEN Guide 414[11], the basic document specifying requirements for the drafting and presentation of European machinery safety standards. Workers' concerns are taken into account at present, but it is true that the situation can be improved by making this integration of users' concerns more systematic."

Policy issues: do we need structural changes?

The discussion on what regulatory responses could support the new ETUI-REHS strategy was introduced by **Corrado Mattiuzzo**, *who gave the audience a timely synthesis summarising some key points of the discussion so far.*

"We all agree that ETUI-REHS has designed a very interesting approach to improve machinery safety. We are all aware that in order to make the most of such an exercise by feeding its outcomes into standardisation, participation is necessary.

We are also aware that standardisation does not offer a level playing field for all stakeholders: the social partners are worst off in this regard. We have also heard how difficult it has been to carry out such a project: the key question is what we all can do to make sure that such an exercise does not represent a one-off episode, rather a permanent mechanism to help standardisation attain the highest quality in terms of productivity and workers' health and safety.

The fact that the Machinery Committee and WG – led by the European Commission services – should have a leading role in helping find appropriate policy answers to the social partners' expectations is, in principle, uncontested. However, in order to stimulate action, ETUI-REHS – together with the pool of Bodies that carried out the forklift truck study – should elaborate and present some sort of plan to be forwarded to the appropriate Commission services."

We all agree that ETUI-REHS has designed a very interesting approach to improve machinery safety.

Discussing how to move from words to deeds, **Martin Eifel** *suggested that ETUI-REHS should:*

"take the experience of the project to the political level within the context of the Machinery Directive and other pertinent directives, in order to establish a permanent mechanism to feed users' concerns into standardisation. In relation to this it would be interesting to monitor the application of Article 5 of the Machinery Directive."

Article 5 of the Machinery Directive requires Member States to "ensure that appropriate measures are taken to enable the social partners to have an influence at national level on the process of preparing and monitoring the harmonised standards".
This requirement is complemented by Recital No.18, which recalls the need "to improve the legislative framework in order to ensure an effective and appropriate contribution by employers and employees to the standardisation process".

11. CEN Guide 414:2004 Safety of machinery – Rules for the drafting and presentation of safety standards. The guide is publicly available on the CEN website at the following address: http://www.cenorm.be/BOSS/supporting/reference+documents/cenguide41420041215.pdf

This monitoring is to be performed by the Commission services. In this regard **Martin Eifel** *suggested that ETUI-REHS should present the project and their concerns at the next Machinery Working Group meeting:*

"We believe that this ETUI-REHS strategy should be discussed in the next Machinery WG. Member States should share their experiences of implementing Article 5 of the Directive. If necessary, as a practical application of Article 5 of the Machinery Directive, it could be envisaged to render obligatory a guarantee that the social stakeholders have been adequately consulted when issuing a standard, in order to safeguard that the standardisation process functions well.

Alternatively (or additionally), one could imagine a system similar to the one associated to the 'recommendations for use' issued by the European coordination of notified bodies, that are open to scrutiny of the Member States, before they are 'endorsed' by the Machinery WG. We might find it useful to do the same with the harmonised standards, in order to pick up those where Member States or the Commission believe that the consultation procedure has not worked properly. However, we have to remain realistic in order to take account of available resources and avoid creating unnecessary red tape."

We might find it useful to do the same with the harmonised standards, in order to pick up those where Member States or the Commission believe that the consultation procedure has not worked properly.

The French authorities have already invested resources in the direction of the ETUI-REHS strategy and are willing to continue doing so.

The opportunity to address Article 5 of the Machinery Directive with the objective of helping to achieve a balanced input of social concerns into standardisation was welcomed by attendees. On the one hand, a reference to Article 5 would strengthen the role of the Machinery WG, as indicated by **Pascal Etienne:**

"ETUI-REHS should call on the Commission to monitor the Article 5 requirements, because it would help achieve a level playing field for any further discussion and decisions taken in the Machinery WG. Authorities value the role of the Machinery WG headed up by the Commission, as it represents a forum where all stakeholders can contribute to a better design and incorporation of machines into the workplace.

The ETUI-REHS study is an impressive example of questions raised about the quality of certain standards. Stakeholders are asked to respond to such concerns: authorities on the one hand, by reporting on measures taken to ensure that social partners can influence national standardisation work; standard-setters on the other, by analysing and taking on board at the appropriate time the suggestions formulated by people acting in the field where machinery is used.

The Commission would politically steer this new way of working together through the Machinery WG. The French authorities have already invested resources in the direction of the ETUI-REHS strategy and are willing to continue doing so.

This is felt necessary given the authorities' responsibility to implement product and social directives by means of a coherent approach. The ETUI-REHS demand to monitor Article 5 is also in line with the objectives of the New Approach revision: to provide a better regulatory framework for the functioning of the Single Market."

A stronger role for the Machinery WG would also help optimise the scarce resources of national authorities responsible for ensuring the protection of workers using machinery at work, as indicated by **Lennart Ahnström**, *who also recalled that:*

"The New Approach – and the role given to standards – has contributed to the existence of safer machines, by providing a common European platform where stakeholders can agree on technical solutions complying with the legislative requirements. Participation is crucial, and we recognise that not everyone has the same possibility of influencing European standardisation work. This situation needs to be improved.
And market surveillance is more and more resource-consuming, especially if we are to take balanced decisions against manufacturers without distorting competition. Reactive initiatives cannot be the sole means to ensure that only safe machines are put on the market. Everyone realises how expensive actions against machines and harmonised standards can be in terms of resources.
That's why it would be better to anticipate problems instead of reacting to them. In this connection, better cooperation among Member States, and better use of any experience like that gained from the ETUI-REHS project, represent the right way ahead."

Cooperation and an "intelligent" interpretation and enforcement of the Article 5 requirements were stressed by **Phil Papard,** *who also stated that:*

"The legal status of the standards that are the object of the seminar today should be always kept in mind: yes, they are the result of a process where consensus, lobbying, resources come into play, but they are expected to deliver the presumption of conformity to the relevant legal requirements of the Machinery Directive.
And we all know how resource-consuming it can be to challenge a standard once it has been published in the Official Journal. This is the reason why HSE considers the ETUI-REHS strategy worthwhile as it helps identify health and safety problems in the field that could be brought to CEN, to see which of them could be addressed taking into account the current state of the art, and which ones require further research work.
We do not need to change the current CEN system: we probably need only to adapt it to take advantage of workers' feedback in an efficient manner. Having a champion in WGs and TCs is important, but realistically we cannot probably have a champion in every MS for every standard we are working on.
I would like to point out that when HSE embarked upon this project, it did not see it as a trade union project: the project was seen as a way to benefit from users' knowledge to improve the design of machinery used at work, by bringing together many stakeholders and working out feasible improvements both in design and in the working environment."

It is important to think about a European level playing field, because some small countries do not have the human, financial and administrative resources to collect information from the field on how machinery is really used.

The need to address both design and the working environment, improving communication between those who construct and those who use the machines, was shared by **Angel Fuente Martin,** *with a focus on SMEs:*

"The ETUI-REHS strategy has the potential to influence European political decision making. Without it remaining a purely academic exercise, reality tells us that SMEs very often lack the technical knowledge and know-how needed to make sound choices of work equipment. As a result, SMEs are very often subject to the whims of market players who sell products but not quality products.
In this connection, we feel that the ETUI-REHS strategy could open up a debate within the framework of the Advisory Committee on Safety and Health at Work[12]. In addition to acting through the Advisory Committee and DG Employment officials, ETUI-REHS should maintain continuous contact with the Senior Labour Inspectors Committee (SLIC) officials and explore new ways to cooperate with market surveillance authorities.
ETUI-REHS should also draw policy-makers' attention to the essential role played by the risk assessment done by employers. Risk assessment is not an academic exercise; rather, it represents a dynamic tool to continuously monitor the balance between productivity objectives and workers' wellbeing.
Today we are discussing how all the information emanating from users can be channelled towards the right targets. It is important to think about a European level playing field, because some small countries do not have the human, financial and administrative resources to collect information from the field on how machinery is really used.
Therefore, cooperation among market surveillance authorities and a continuous knowledge transfer on workplace experience with machinery is essential. We should also keep in mind that other stakeholders like insurance companies could be asked to play an active role, since they are the bodies that pay for sick leave, injuries, etc."

The attention given to SMEs' health and safety needs by the European Agency for Health and Safety at Work is a continuous commitment, recalled **Brenda O'Brien:**

"Europe's small and medium-sized enterprises are key drivers of economic growth and job creation. However, due to a lack of financial and organisational resources, many SMEs have only limited occupational health and safety knowledge and capacity. That is why the Bilbao-based European Agency for Safety and Health at Work keeps on organising SME funding schemes focused on reducing safety and health risks in Europe's SMEs.
Forklift trucks are the most widely used pieces of equipment for moving materials around worksites and warehouses in numerous industrial and manufacturing sectors. But their use results in a high rate of accidents involving drivers and other workers, especially in SMEs. Forklift drivers are also exposed to many other risks, as a result of poor ergonomic design, awkward postures, repetitive movements and additional manual handling of goods.
Against this background, the transnational project where ETUI-REHS was involved some years ago, was considered worthy of the Agency Award because it aimed to reduce these risks by working with drivers, designers, dealers and national authorities towards improving forklift truck design, and by setting up training activities. I am delighted to see that the Agency Award drove trade unions towards another successful European experience."

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12. The role of this standing Advisory Committee is to assist the Commission in the preparation and implementation of decisions taken in the field of safety and health at work and to facilitate cooperation between national administrations, trade unions and employers' organisations. ETUI-REHS acts as coordinator of the workers' interest group.

Insights into how the ETUI-REHS strategy affected a multinational enterprise were provided by **Georges Fleury**, *who observed that:*

"The employees at AREVA NC had no qualms about participating in this type of survey. The procedure used in the new method proposed by ETUI-REHS is very similar to our way of working on a daily basis in many areas, such as dealing with quality, the environment and safety management. In these three areas we base ourselves on standards ISO 9001, ISO 14001 and specification OHSAS 18001 respectively.

The basic principle behind this sort of approach is a process of continuous improvement. Under this principle, and in the present case of machinery standards, it is important to take as many factors as possible into account, most notably users' opinions. Of course it is vital to analyse all the information gathered, and this forms part of the proposed new method.
It has become part of our regular practice to involve employees in this kind of continuous improvement process, and they consider it necessary if not indispensable. What is more, they were even more enthusiastic once we told them that the outcome of the survey they were involved in would be incorporated into a revision of European-level standards. *It's the first time they've ever asked for our opinion at such a high level*, they said. But in actual fact, the workers involved in the survey also asked us about the outcomes.

Under the previous method, still being used to draw up and revise standards, the fact that it is not possible to collect users' opinions and generally take them into account is a weak link in the existing process. So the proposed new method solves this problem, or at least considerably improves things. This new method sits well with a process of continuous improvement, and it certainly suits us."

The basic principle behind this sort of approach is a process of continuous improvement.

Finally, the need to integrate the ETUI-REHS strategy into the 'CEN system' was underscored by **Franck Gambelli** *and* **Olivier François**, *who began by acknowledging the importance of users' feedback:*

"It is not just legitimate for employees – the users of machinery and personal protection equipment – to have an input into standardisation, but it is in the undeniable interest of their employers and of the employers' suppliers. Employees are the people directly exposed to residual risk, and prior risk reduction helps employers comply with their safety obligations. Operators use the devices on a daily basis and are often more familiar than anyone else with all their attributes, both positive and negative. In some cases employees make purchasing decisions that are important for companies and hence manufacturers. The user feedback exercise organised by ETUI-REHS can contribute valuable experience to standard-setters' deliberations.

However, the role played by Member States' monitoring bodies in this type of operation requires some clarification. Member States are obliged to ensure that the goals of the Machinery Directive are attained in their country, particularly as regards involving employees in the standardisation process. It is in this spirit that national monitoring bodies have helped the trade unions to collect information in the field and organise it in such a way that it can be fed into standardisation work. Nevertheless, the companies participating in standardisation groups cannot be bound by comments made by employers' representatives in response to this type of survey.

It is in this spirit that national monitoring bodies have helped the trade unions to collect information in the field and organise it in such a way that it can be fed into standardisation work.

Furthermore, as we understand it, this user feedback is being 'taken' to CEN by ETUI-REHS and not by Member States' representatives. So this is not some kind of 'common position' between Member States and trade unions that enjoys a special legal status, whereby non-compliance by the other standardisation parties would automatically trigger the threat of a safeguard clause. A new and 'exceptional' standardisation procedure, alluded to by one Member State representative taking part in this exercise, would bypass CEN's rules of procedure and would not be acceptable to us. Subject to these few remarks, we welcome the high-quality work done by ETUI-REHS and hope it will help ensure that standards take better account of reality on the ground."

6. Overall conclusions and future plans/perspectives

Laurent Vogel, ETUI-REHS, Acting Head of the Health and Safety Department

The ETUI-REHS strategy seeks to respond to indications given by the European Commission. Two EC communications[13] stress the importance of "information exchanges" to enhance the implementation of the New Approach Directives. The project that we discussed together is a significant practical challenge in terms of research effort. It addresses the human costs associated with the use of forklift trucks every year. So it is a big challenge not least for the sake of human beings.

On a general level, the ETUI-REHS strategy enables us to assess the credibility of the whole New Approach. In fact, under the New Approach, policy-makers have delegated some of their functions to private or semi-private bodies. This delegation of power necessitates respect for a series of conditions, and one of the fundamental conditions is the possibility for all interested parties to efficiently participate in the definition of technical standards.

In this connection we trade unionists believe that the present situation is not satisfactory. There are a series of causes, reasons that conspire to create a particular state of affairs, and there is no guarantee as we speak that all the parties involved can participate in the standardisation process.

What we need to see is how an exercise like the one presented today can be not just a nice show, a nice session identifying problems and difficulties. We must ensure that this actually leads to a number of changes – and I would say that these need to be structural changes. And we don't want to give the term structural an exclusively regulatory meaning.

We think that in a number of cases organisational roles can remain what they are but structural changes need to happen in practice. This change, in my opinion, is an issue for all stakeholders so the idea is not just to say that changes need to focus on this or that particular structure or group, because it would not correspond to the present situation.

Results in terms of quality are not homogenous, and beyond these differences there is also a lack of cooperation.

We believe that a guiding role must be played by the European Commission, and more particularly DG Enterprise, because the quality of standardisation is a fundamental issue for the implementation of the New Approach. Only the Commission can convince all the stakeholders concerned to cooperate on health and safety matters so as to make the New Approach more credible.

Our Seminar today has shown how important is the role of CEN. We believe that it is at the same time a very open and a very closed club. Anyone who is interested can participate, but it is also a very exclusive club because any efficient and effective participation calls for resources. Not only material and financial resources but also resources in terms of the capacity to formulate proposals in a language that will be listened to and heard. In practice, language barriers deprive a large number of stakeholders from exerting influence on standards.

The Member States have an essential role to play when it comes to monitoring the market. We believe it should not just be retrospective surveillance, once unwanted events have occurred, but also proactive market surveillance trying to spot problems and difficulties in advance.

We see today that there are some major imbalances in the circumstances of the different Member States. Results in terms of quality are not homogenous, and beyond these differences there is also a lack of cooperation. How it is possible, for instance, that in terms of market surveillance in some sectors and on some issues we repeated the same efforts in the different countries several times whereas we could have avoided that by means of effective European cooperation? And vice versa, there are sectors that are completely and totally neglected and are not being tackled seriously in any country of the European Union.

13. COM(2003) 240 final, COM(2003) 312 final.

So, as far as market surveillance is concerned, there is one important question: how can we provide information feedback, and more particularly, how can we add value to what is happening day by day in companies in terms of risk assessment and accident investigation so that it can change something, so that it can make some difference in the standardisation process?

This is only happening to a very limited extent. Some attempts have been made, and Mrs Rendu spoke about some of the attempts happening in France, but the results are very modest, very poor, if not close to non-existent.

So ETUI-REHS would like to stress that there is an opportunity, and we need to rise the occasion. Day after day, risk assessment is carried out in hundreds of thousands of businesses. Some assessments are of good quality, others are not. But very often even high quality risk assessments are useless, because Member States do not take measures to ensure that they are analysed, to ensure that the problems can actually be fed back into the standardisation process.

National authorities should start valuing risk assessment: this is a starting point if we want to be aware of situations where improvements are needed. Achieving better cooperation with the different stakeholders during risk assessments in different companies leads to better cooperation between the different national authorities: common problems can be easily spotted and rational work sharing can then be organised.

One of our plans is to see what can be done so that the users' feedback exercise presented here today does not remain a dead letter, so that it goes on and is pursued further. Secondly, what does it teach us, what is the plus point, what are the conditions for the New Approach to function and operate credibly? What can it contribute in terms of political decision-making? What can we do, what can we draw from these experiences so that we actually improve the functioning and operation of the New Approach?

Our intention is to continue taking part in pilot projects, concrete projects and also to approach the political players. The policy-makers attending this seminar have welcomed the ETUI-REHS initiative. We have shown on the basis of a concrete pilot project that we were able to bring together institutions which are very different in nature, and that it is possible to hold talks here with all the Machinery Directive stakeholders. This is a very encouraging exercise and, since everyone agrees that the current situation is not satisfactory, we hope that changes will follow.

Our intention is to continue taking part in pilot projects, concrete projects and also to approach the political players. The policy-makers attending this seminar have welcomed the ETUI-REHS initiative.

ETUI-REHS national partners involved in the project since 2001

- **Tuiri Kerttula, Tapio Siirilä, Ministry of Social Affairs and Health, Finland.**
- **Pascal Etienne, Geneviève Rendu, Marie-Noelle Rouxel, Ministry of Employment, Social Cohesion and Housing, France.**
- **Ulrich Bamberg, Commission for OH&S and Standardization (KAN), Germany.**
- **Roberto Cianotti, Antonio di Mambro, Maria Nice Tini, ISPESL-National Institute of Occupational Safety and Prevention, Italy.**
- **Phil Papard, Clare Field, Tim Harris, HSE, United Kingdom.**

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A European system to improve machinery safety by drawing on users' experience

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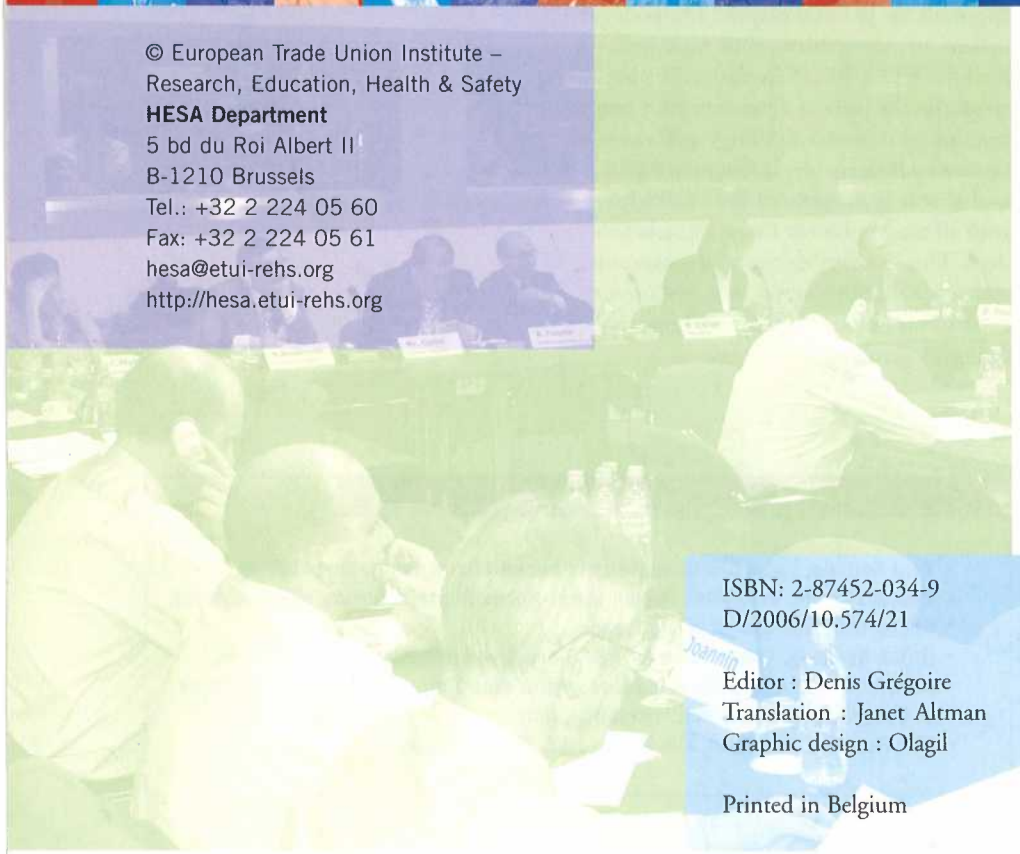

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