

Project plan

Project: Development and validation of a practical monitoring and assessment tool (MAT) for injury prevention at workplaces.

Authors: Frank Bochmann, Thomas Heitmann (IFA, BGHM Germany)

Date: January 2017

1. Duration of the project: 2 years (1 January 2017 – 31 December 2018)

Continuation of project possible

2. Partners

Project Leader	Roles and responsibilities	Brief outline of knowledge and experience	Contact details
Frank Bochmann	Project manager 1	Epidemiology, medicine, statistics, broad experience in risk assessment, exposure risk relationship, reviews in epidemiological topics, member of several committees for hazard risk assessment and occupational exposure limits	Frank.Bochmann@dguv.de
Project Members			
PEROSH institutes interested in the project		Prevention measures, optimization of occupational prevention, cost-benefit analysis	
Thomas Heitmann	Project manager 2	Expert for applied science in occupational safety and health Technical inspector for social accident insurance institutions	Thomas.Heitmann@dguv.de

3. Aims of the project

A multitude of factors can lead to accident or injury at workplaces. These factors are generally categorized as technical, organizational or personal factors. For instance, poor physical condition, excessive force, low awareness of dangers, stress and the workplace design may make a substantial contribution to the injury rate. For this reason, a wide range of professional injury prevention programmes have been put in place around the world and especially in industrialized countries, in addition to the legal framework and technical guidelines. The majority of successful injury prevention programmes are based on a common set of key elements. Among these are technical improvements, management leadership, worker participation, hazard identification, hazard prevention and control, education and training. Effective control of the key elements of work safety may help to identify practical safety deficits at an early stage and ensure the long-term effectiveness of injury prevention.

3.1 Monitoring and Assessment Tools (MAT)

The need for comprehensive monitoring and assessment of safety conditions at workplaces led to the first version of a practical measurement tool being developed by a group of safety professionals at the German Social Accident Insurance. Key elements in work safety were integrated into a prevention index (PI_{TOP}), which is currently being trialled in the German woodworking and metalworking industries. The PI_{TOP} has already been tested in a first phase, delivering good results for reliability and validity in the German woodworking and metalworking industries.

Reliability was examined by a factor analysis. The factor analysis proves that the theoretical assumptions regarding the structure of the PI_{TOP} are in line with the data obtained from the woodworking and metalworking companies.

The instrument's validity was checked using the association between the PI_{TOP} rating of the OSH quality of the workplaces and the numbers of occupational injuries. The workplace rating of the PI_{TOP} was shown to correlate with the corresponding number of workplace injuries.

Furthermore there are other work monitoring and assessment tools issued by European work and safety authorities. (such as Denmark, Poland, Finland, Spain etc.)

Different approaches will be discussed and integrated into one new MAT.

3.2 Validation

The next step in validation of the new developed MAT will be testing of its applicability on an international level and for other sectors besides the woodworking and metalworking industries. For use on a broad scale, it should be combined with the other tools. The reliability and validity of the new MAT should be tested internationally, and correlation between the MAT and incidence verified.

4. Scientific relevance

MAT is a further development of the approach for the classification of measures for preventing occupational accidents and work-related diseases with the following prioritization:

1. Technical measures (T)
2. Organizational measures (O)
3. Personal measures (P)

This "TOP" approach derives from the German Occupational Safety and Health Act, which describes the general principles for initiating measures to prevent occupational accidents. For this purpose, the measures are to be in line with the state of the art in occupational safety and health. Technology, work organization and other conditions, and also social relationships and the influence of the environment, should be given appropriate consideration, i.e. the workplace should be designed to minimize the risk of occupational injuries or diseases. If modification of the workplace is not possible, the next option for the protection of employees is the use of PPE.

Technical measures include for example the safety equipment of machinery, ergonomic design of work materials and workplaces, the design of roads and of means of transportation, and the use of substitutes for hazardous substances.

Organizational measures include for example the performance of a risk assessment, safety tests, the provision of instruction to employees, preparation of an emergency plan, and monitoring of the measures' effectiveness.

Personal measures include for example the wearing of personal protective equipment, basic and advanced training of employees, compliance with safety instructions, and observance of communication structures relating to occupational health.

Based on these principles, four central questions were developed for each of the criteria of technology (T), organization (O) and person (P). The strengths and weaknesses of the company's safety and health arrangements can thus be determined in relation to these three aspects.

5. Practical and social relevance

The MAT is planned as a tool for evaluation of specific safety conditions at a given workplace by which guidance can be provided on the appropriate prevention measures for the company, the sector and the country.

- Reduction in the absolute number of occupational accidents and diseases.
- Reduction in the working days lost due to work-related accidents and diseases.
- Hazard-based examination of work processes by use of a structured and valid tool.
- List of links to European authorities working on risk assessment and regulation for the industrial sector.
- Sharing of resources for risk assessment for major topics in PEROSH.

6. Type of activity

Meeting of interested OSH institutes for:

- Establishing of a MAT working group
- Organizing and management of MAT working group members

Activities

- Meetings and teleconferences of the working group
- Support for group members in executing MAT

Aims

- Validation of results
- Reliability
- Summary of results in report
- Webpage for MAT working group activities on the PEROSH website

7. Methods

This project is to determine whether the MAT can be applied internationally.

In order for the MAT to be tested and developed in multiple countries, workplaces in these countries are to be assessed using the MAT. At the same time, information on

occupational injuries is to be collected. This will generate the data that can be used to check the reliability and validity of the MAT as a tool for the prevention of occupational injuries.

8. Project steps

1. All members of the MAT working group are introduced to the variety of existing programmes. Each member receives a handout and a flyer.
To be discussed: how should the MAT be introduced in consideration of differences in legal requirements and OSH structures between the different countries?
2. Members identify supporting companies in their countries.
To be discussed: sample size, classification (at national level, sectors, etc.) for the statistical analysis. (It is crucial for companies to provide statistics on their own work-related accidents in the past five years.)
3. The working group collects data in accordance with the MAT scheme. The results of data collection are evaluated scientifically. The activities of this group concern the scientific procedures only, not their implementation in legal regulations.
4. The outcome of the evaluation is presented and discussed with the working group. Possible improvements to the process (e.g. adaptation of the MAT to different legal requirements) can be discussed.
5. The activities and results of the working group are published on the PEROSH website. Information on the status quo, occupational risk assessment and study results are discussed and summarized in a report. Subject to agreement in the working group, the reports are published on the PEROSH website.

9. Outcomes/deliverables/expected results

A report will be produced on the MAT project concerning the activities of the workgroup. This will be presented on a PEROSH webpage.

10. Project management

Project management is the responsibility of the IFA. Some ad-hoc face-to-face meetings will be held during the project. Communication will primarily be via e-mail, WebEx or teleconferences.

11. Communication and dissemination

A report will be produced for the entire project. The working group can recruit further partners during the project phase. Individual outcome will be prepared for participating organisations in order to be forwarded to the attending companies.

12. General rules of cooperation

Publication matters are to be clarified in the working group. The working group is to write a letter of understanding on the collaboration procedure.