

## HOLISTIC RISK ASSESSMENT

### 1. Organisations involved

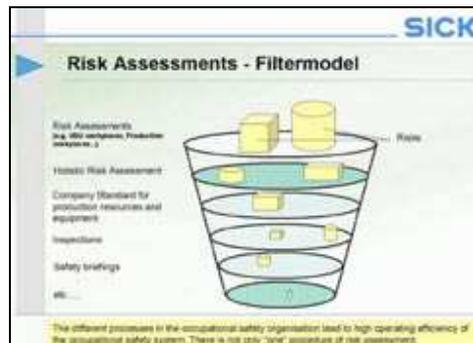
SICK AG

### 2. Description of the case

#### 2.1. Introduction

SICK AG is a company that specialises in manufacturing sensor technology for industrial applications. The company and its subsidiaries employ 5 300 people worldwide and are represented in 40 countries. Its headquarters and main production facilities are in Waldkirch (Germany). Since 1998 risk assessments of office and production workplaces have been carried out at the headquarters but the approach taken is no longer considered to be adequate. Among other things, it did not provide a comprehensive assessment of mental strain at work. Consequently the management decided to carry out a so-called 'holistic risk assessment' based on the new in-house health promotion policy. This policy focuses on integrated occupational safety and health management and in-house health promotion, based on the principles of cooperative management culture and participation of the workers and their representatives. The company believes that reduction of risks at work should go hand in hand with promoting the welfare of the workers. This is why it signed the Luxemburg Declaration on Workplace Health Promotion in 2007<sup>1</sup>.

Figure 1. Filter model of SICK OSH management



With regard to risk assessment, this new approach was designed to include the thorough assessment of both physical and mental strain at work. It was intended to be carried out by and include all stakeholders in the company, including the management, workers, and workers' committee. It was guided and evaluated by experts from the University of Freiburg<sup>2</sup>. In 2005 the first holistic risk assessments were carried out as pilots. The project team decided to cover both office and production workstations. Special attention was given to risk factors that could lead to stress and to accidents at the workplace, such as time pressure, noise, interruptions, permanent alertness, as well as on general circumstances such as work-life balance, work-time allocation, physical inactivity and fatigue. Initial evaluations were done in 2006, followed by a second pilot in 2006/2007, and new holistic risk assessments were planned for 2008. After that the project will be transferred into an ongoing process covering the whole enterprise.

With the implementation of the Law on Occupational Safety and Health (*Arbeitsschutzgesetz*), coming into force in 1996 and transposing the Framework Directive 89/391/EEC, it became

<sup>1</sup> For more information: [www.enwhp.org/fileadmin/downloads/luxembourg\\_declaration.pdf](http://www.enwhp.org/fileadmin/downloads/luxembourg_declaration.pdf)

<sup>2</sup> Since 2007 the project has been guided by the University of Applied Sciences of North-Western Switzerland

# CASE STUDIES

obligatory for all companies to carry out workplace risk assessments. SICK AG fulfilled its legal obligation by carrying out risk assessments of production and office workstations on its premises. Risk assessments were carried out by means of inspections, with the help of checklists. Results were documented with the help of software. The focus was on assessing physical strain and workplace ergonomics. Common hazards that could be identified were dangerous substances (toxic gases), repetitive strains and monotonous work.

Changing working conditions meant that these risk assessments were no longer adequate. The stress of greater competition, the need for more flexibility, just-in-time production, and constantly changing workplaces are all placing mental strain on workers in manufacturing industries. Therefore it was decided to strengthen the assessment of psychosocial risks and to shift from a mainly physical risk assessment towards a holistic approach.

## **2.2. Aims**

In 2005 SICK AG began to carry out a pilot project of holistic risk assessment. Three areas in production and in administration were selected to participate in the assessment of psychosocial risks: a production line, a research and development department and the order processing department. Scientific partners were the Department for Work and Organisational Psychology of the University of Freiburg, bringing in expertise in assessing mental strain with the help of questionnaires.

The aim of the project was to identify mental strains at work, without neglecting the physical workload and accident prevention aspects and to come up with adequate measures to eliminate or reduce existing risks. The experiences gathered in the pilot project would later be used in ongoing risk assessment processes throughout the company.

## **2.3. What was done, and how?**

During the first pilot the workstations of 183 workers were studied. Typical workstations in the participating departments (production line, research and development/R&D, order processing) are:

- production: machine operating, pick and place, quality control;
- R&D: application development, chip development, project management;
- order processing: accounting control, financial accounting.

The project itself consisted of various work packages.

1. Analyses of existing documentation, such as enquiries among workers and organisational charts and interviews with management representatives. The University of Freiburg team wanted to gain an overview of workflows, work organisation and job descriptions.

2. The analysis of the working conditions was done in two steps, beginning with analyses of individual experience of workloads and resources (subjective experience of working conditions) and afterwards with task analyses (objective data on working conditions). For individual experience, workers were asked to fill in questionnaires on mental workload and resources. The questionnaire was anonymous. It was accompanied by a log on working conditions that each worker was encouraged to fill in daily, recording both positive and negative experiences at work. The aim was to determine the typical working conditions that can lead to elevated mental strain (stressors) and resources.

3. The university team presented the results of the analyses at a workshop. They were discussed and evaluated in dialogue with the workers, and measures for improvement suggested.

4. The measures were implemented under the guidance of the management, assisted by volunteers from the departments who took care of practical implementation and supervision of the measures.

5. The measures were evaluated six months after implementation in a feedback workshop and one year after implementation by questionnaire (see below). Frequent meetings were also held

# CASE STUDIES

between the risk assessment steering committee, management representatives and the worker volunteers.

**Figure 2. Holistic RA steps and milestones**



The risks identified included 'permanent interruptions, high noise level, permanent alertness': incoming e-mails, incoming orders per mail and telephone, incoming rush orders, questions from colleagues and info centre, parallel tasks, personnel requisitions, offices used as material stock, etc. All these factors led to continuous interruptions in work flow. Printers, copy machines, telephone calls and discussions of office colleagues, etc. caused permanent noise in the offices. Symptoms were tiredness, fatigue, general discontent, unfriendliness, aggression, lack of concentration, feeling of pressure at work, and decline in performance.

A workshop was held to discuss possible measures for improvement, especially with regard to how easy they would be to implement:

**Table 1. Workshop results**

Complex	Reasons	Measure	Comment
	Open-plan offices	New office layout, reduce number of workers per office to three	Effectiveness high, implementation easy
	Material stock in office	Separate stock rooms	Effectiveness high, implementation easy
	Noise caused by telephone calls	Lower voice, thoughtfulness	Effectiveness high, implementation easy
	Multiple tasks	More personnel resources, team assistants	Effectiveness high, implementation easy
Interruptions/noise/alertness	Freelancers and trainees are unsure about equipment	Improve information on the intranet (user manuals)	Effectiveness high, implementation easy
	Interruptions in workflow because colleague is unavailable	Promoting the use of existing message techniques (answering machine, messenger)	Effectiveness high, implementation easy
	Freelancers and trainees are unsure about processes	Optimising processes, better information management on intranet	Effectiveness medium, implementation medium
	Multiple tasks	Better share of work (project work and daily routine), optimising processes	Effectiveness medium, implementation medium
	Office equipment causing high noise emissions	New office equipment with low noise emissions	Effectiveness high, implementation more difficult
	Interruptions by phone calls	Defining office hours for responding to phone calls	Effectiveness depends on workplace, implementation more difficult
...	...	...	...

# CASE STUDIES

Finally the measures were implemented in order of priority. Measures of high efficiency which were considered to be easy to implement were of highest priority.

At this stage of the project, the findings of the risk assessment on physical strain and ergonomics which had been carried out beforehand could also be taken into account. A good example is the new design of office workplaces: by changing the office layout and reducing the number of workstations, a number of ergonomic deficiencies could be eliminated at the same time. For example:

- changing office geometry and positions of desks; placing them at 90 degree angles to windows or walls;
- mounting new multiple socket outlets to avoid trip wires;
- mounting visors and glare shields to prevent glare on computer monitors;
- changing monitor positions (height and angle);
- buying new office equipment, e.g. desk pads and desk lights.

## ***Problems faced***

Talking about mental strain at work and particularly stress seems to be a taboo for both workers and management. People don't want to give the impression that they cannot cope with stress at work or that they are not able to work under pressure. Therefore it was very important to overcome prejudices by talking frankly about fears and common misunderstandings. Risk assessment of psychosocial risks at work is not about assessing personalities but about assessing external stressors in the work environment and work organisation and finding ways of getting rid of them.

## ***2.4. Success factors***

The project was carried out with full backing of the management. The workers of the assessed areas were included and informed from the very beginning. This helped create a trustful atmosphere in the company and to enhance communication and understanding between workers and management, especially in respect of problems at work and different points of view about them.

With the help of the university experts and a variety of instruments, risk assessment could be carried out taking into account objective and subjective, qualitative and quantitative data. Furthermore the project could be tailored to the needs of the different departments included. This was particularly helpful not only for the results of the first pilot, but also for follow-up projects and for installing holistic risk assessment permanently.

The evaluation was done in two steps. Six months after implementing the initial measures all workers and management representatives were invited to attend a feedback workshop. All participants reported on their experiences, i.e. whether the measures had been carried out properly and if any further problems were encountered.

After one year (October 2007) the scientific staff of the University of Freiburg checked on the effectiveness of the measures by administering a questionnaire to all workers. They found that the following risks had been reduced substantially:

- environment: 46 % of the workers involved considered the situation after the intervention to be better than before, no one considered it to be worse;
- noise: 50 % said that noise at work had been reduced, only 11 % disagreed with this;
- narrow offices: 60 % stated that the new designed offices are more spacious while 11 % considered their workplace to be narrower than before.

The results also showed workers' satisfaction as far as the implemented measures were concerned.

# CASE STUDIES

- 50 % considered the overall situation at their workplace had (significantly) improved by the risk assessment process. Nobody considered it to be worse.
- 50 % considered their personal well-being had (significantly) improved. Only 11 % considered it to be worse.
- 78 % considered the measures regarding the collaboration with colleagues to be helpful.
- 33 % considered that the quality of work and the results had improved while 6 % considered that it had deteriorated.

With regard to the overall project:

- 72 % agreed that it had been worthwhile;
- 67 % felt that they were well informed and involved in the project;
- 33 % felt that they had learned about strains at work and what they could do to combat them.

## **2.5. Further information**

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## **2.6. Transferability**

SICK AG used the experiences from the first pilot for further improvements. Meanwhile the holistic risk assessment has been expanded to other areas. By 2009 the SICK AG management expects the pilot phase to be finished and the holistic risk assessment will be incorporated permanently into management processes.

Experiences so far show that holistic risk assessment can be carried out both in offices and production facilities. It is suitable for both workers and management representatives. But it must be adapted to the particular needs and circumstances of the organisation in order to get the best results possible.

## **3. References, resources:**

- <http://osha.europa.eu/en/publications/reports/TEWE09001ENC>