





# **It's all about people**

*Priorities for tomorrow's occupational safety & health*

10 top trends from the Risk Observatory of the  
German Social Accident Insurance

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# Knowing today what will be important tomorrow

Humankind has always wanted to be able to look into the future so as to be equipped for coming developments and take the right decisions. But we currently live and work in a world that is being transformed almost daily due to digital innovation, globalisation and demographic change, and in almost all areas. The foreseeable future in this context does not extend very far ahead.

Change is usually closely linked with new opportunities and progress. But change can also mean uncertainty and new risks. This other side of the coin calls for special attention above all in those areas where people are particularly affected and where their physical and mental integrity are on the line.

An area that this applies to is the world of work that is currently undergoing reconfiguration on the principle of “Work 4.0”. Digital change in particular has huge potential for making future work safer, healthier, more flexible and also more inclusive. The opportunities range from intelligent safety technology and virtual engineering via medical innovation for diagnostics and treatment through to digital training aids: the spectrum of possible future scenarios is colourful. All this is accompanied by a multitude of possible risks: data overload and

overwork, a work-life imbalance, lack of exercise and uneven stressing due to the abolition of manual tasks, new forms of insecure employment such as crowd- and clickworking, new accident or health hazards due to innovative technology and much more besides.

Ever since Otto von Bismarck who introduced social insurance in Germany in 1889, safety and health at work have literally been an institution in our country. A distinct field of social insurance, social accident insurance, ensures that the health, vocational and financial consequences of accidents at work and occupational diseases are mitigated as far as possible for the persons concerned. But it is also a question of acting upstream, i.e. preventing workplace accidents and occupational diseases and work-related health hazards wherever possible.

To do this successfully – above all in times of major technological and social upheaval – the conditions in which people work have to be constantly monitored: What is changing? What will be the consequences for the safety and health of employees? What measures need to be taken to prevent possible detrimental consequences and minimise risks? Responding here to the foreseeable means waiting until the first workplace accidents

and occupational diseases arise – new problems that prevention has to deal with. But this is precisely what we don't want! Instead prevention aims to act proactively, i.e. in advance. But what does this mean in practice? The purpose of proactive prevention is to identify trends and new risks before their consequences become visible; to foresightedly deploy resources; and to target its action to meet the individual needs of, for example, specific industrial sectors.

The fact that there are differences here and the offers of prevention have to vary accordingly is demonstrated by the monitoring report "Digital Economy 2014" of Germany's Federal Ministry of Economics and Energy. For instance, digitisation is by no means a dominant feature in all sectors. Most strongly digitised are, among other things, IT, financial and insurance services and automotive production.

The sectors that have so far invested relatively little in digitisation are transport and logistics as well as the energy and water supply industry. The examples show that what is demanded is a systematic and sector-driven analysis of future prevention needs. The Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA) has therefore been running its so-called Risk Observatory since 2012 – on behalf of the social accident insurance institutions.

Over a period of three years, the IFA monitoring team has been engaged in interviews, assessments, research, discussions and evaluations. The focus has been on the coming five years. The findings have been summarised in this brochure.

The Top 10 subjects have been identified. Referring to these fields of action to which separate chapters have been dedicated, the accident insurance institutions are unanimous in their view that these are changes that will have a particularly strong impact on safety and health at work in the coming years – and hence on tomorrow's prevention work, i.e. OSH activities.

Much of this will seem familiar, as global trends don't stop at the world of work. Other things may be new to you. But it will all, we hope, meet with your interest. And we have to admit that the future has in store for us plenty of surprises that we are incapable of imagining from today's vantage-point.

I wish you an exciting read.

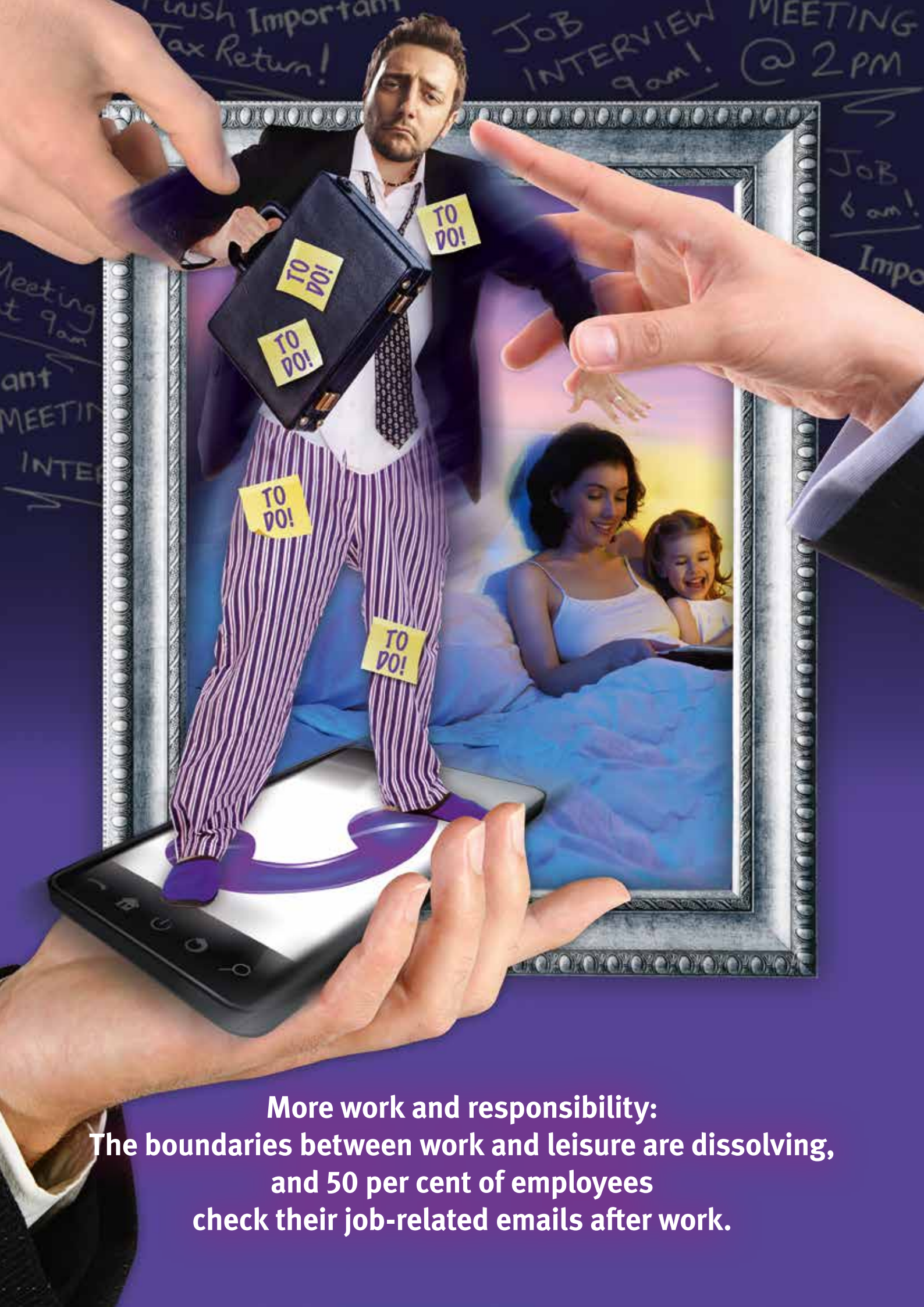


Prof. Dr. Dietmar Reinert  
Director of the Institute for Occupational Safety and Health  
of the German Social Accident Insurance



*The purpose of proactive prevention is to identify trends and new risks before their consequences become visible; to foresightedly deploy resources;*

*and target its action to meet the individual needs of, for example, specific industrial sectors.*



**More work and responsibility:  
The boundaries between work and leisure are dissolving,  
and 50 per cent of employees  
check their job-related emails after work.**



# More work and responsibility

The skills expected of the employee are growing. He or she has to be quick, flexible and available – this is how people have to function in networked and virtually controlled production processes, inclusive of the associated services. Interdisciplinary project work not tied to a place and time or global processes taking place 24/7 demand constant attention. The high degree of automation cuts costs and boosts product and process quality.

Under these circumstances, employees have to be capable of setting priorities and bearing a large measure of responsibility. While coping with a rising tide of data and ever more complex tasks. Not everyone is able to satisfy these requirements, particularly when one considers that solitary workplaces are increasing, so there is less opportunity for communication with workmates.

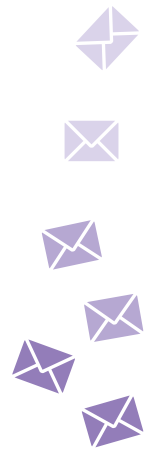
On-the-spot guidance and feedback are only possible to a limited extent. On top of this, duties are often only superficially discussed, so employees do not feel properly prepared for their new tasks. The intensification of work and the growing

burden of responsibility results in mental stress. The growing deadline pressure is considered excessive by over 15 per cent of the workforce.

Another factor is the erosion of fixed working hours. Largely as a result of access to the Internet, the boundaries between work and leisure are becoming blurred, and roughly 30 per cent of employees now work one day or more per week from home. The reasons can be both positive, e.g. to better reconcile the job and family life, and negative, e.g. to catch up on unfinished work.

More than 40 per cent of employees read their emails outside work. And about half state that they are available to customers or their own business in their free time, a situation that applies particularly to executives and employees with customer dealings. These statements obviously have to be examined more closely: is use actually made of this availability? As it happens, one in six respondents admits to being contacted once or more per week during their time off. Mobile employees complain of a serious lack of autonomy

Increase in job-related emails after work.



42%



42 per cent of German employees read their job-related emails after work.  
(*gfu – Gesellschaft für Unterhaltungs- und Kommunikationselektronik, 2015*)

## Intensification of work and growing responsibility

Relevance of the trend in different sectors



because they are expected to respond directly to phone calls or emails. The feeling of being available constantly or at short notice causes tension. Employees available to a moderate degree take sick leave because of mental illness more frequently than employees who are less available. In the transport & warehousing and retail sectors in particular, availability is expected outside normal working hours. This is also claimed by 37 per cent of employees in the hospitality industry.

People who shoulder a large degree of responsibility suffer from the concentration of data and demands. In almost all sectors, even in public administrations, hierarchies are being dismantled in favour of personal responsibility. This applies particularly to fire service and emergency staff and to operators of machines and plant. These employees bear a large burden of responsibility during their work since their intervention in live processes is in most cases irreversible.

Let's take the example of chemical installations: with the aid of information and communications technology (ICT), processes are monitored and controlled in displays in real time. Keeping an eye on several monitors at the same time is an example of the intensification of tasks and responsibility through the use of ICT. If the information is not well presented, the task becomes even more stressful.

Where employees are overstretched, there is a risk of safety hazards due to inappropriate responses. The tension is

particularly high when employees are expected to respond appropriately to an emergency or malfunction every time, e.g. when driving vehicles, operating installations, or in the health professions. The combination of more intensified tasks, longer working hours and greater responsibility raises the error rate.

Also affected are public services. Work is intensifying here because of the drive to cut costs, among other things by reducing staffing levels: in 2010, 30 per cent fewer people were working in public services than in 1991. The pressure is increasing in the services sector as well.

Over 50 per cent of employees in the hospitality industry have gained the impression in recent years of having to accomplish more and more in the same time. In the food industry, this is the experience of almost 70 per cent of employees – who regularly work overtime. Shift work with evening and night hours is widespread. In the hospitality industry, short-term changes in the work schedule often occur with shift sequences that are unhealthy. This hampers family, leisure and holiday planning. With less than 2.5 hours of socially usable, freely available time per day, participation in social and family life is at risk.

For hospital doctors, 24-hour shifts are standard. 71 per cent feel that the organisation of their working hours impairs their health. The working hours of many other health service employees such as

nursing and care staff are similarly un-social. The pace of work has increased, often without provision being made for sufficient breaks.

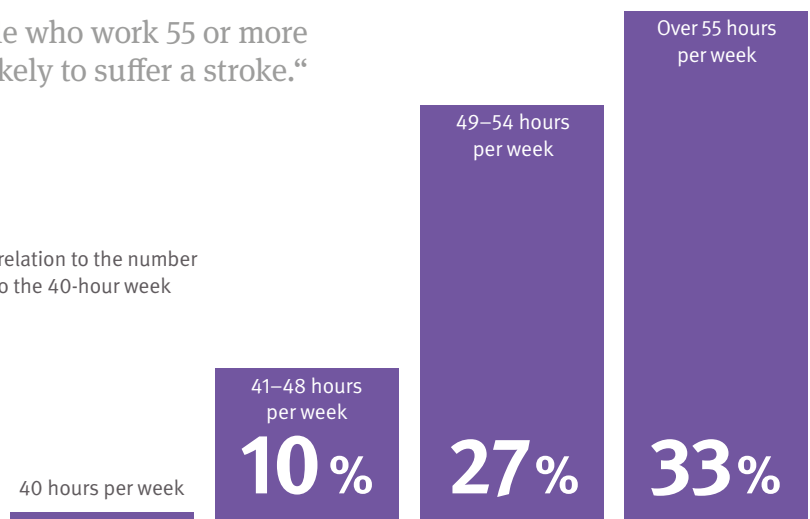
The factors of work intensification, longer working hours and the extension of responsibility threaten the balance between work and leisure. Employees find it difficult to distance themselves from their work, and all the more so if they believe they are unable to concentrate on their work during working hours. This is due to frequent interruptions due to phone calls, emails and meetings. What is left unfinished is taken home for completion: 40 per cent of employees are preoccupied in their free time with difficulties at work.

Many people find it increasingly difficult to relax outside work. Employees who feel chronically overburdened end up in a “standby mode” that can even result in working behaviour with addictive characteristics – followed by the experience of severe stress culminating in exhaustion and depression. The combination of excessively long working hours and strain in particular can cause such symptoms as headaches, high blood pressure and a weakened immune system – often in combination with musculoskeletal complaints. Concentration and performance decline, while the risk of accidents, cardiovascular disease and overweight increases. People who work 55 hours or more per week are 33 per cent more likely to suffer a stroke. The risk of coronary heart disease is 13 per cent higher.

**More overtime, more strokes.** “People who work 55 or more hours per week are 33 per cent more likely to suffer a stroke.” (Lancet 2015)



Increase in the stroke risk in relation to the number of working hours compared to the 40-hour week





*A big problem caused by the intensification of work is that employees deliberately engage in behaviour harmful to their health in order to achieve their work target.*

*It is therefore essential that everyone involved – managers as well as the employees themselves – is sensitised to the subject of “interested self-endangerment”.*

*Isabel Dienstbühl, Prevention Manager  
German Social Accident Insurance Institution for  
the foodstuffs and catering industry*

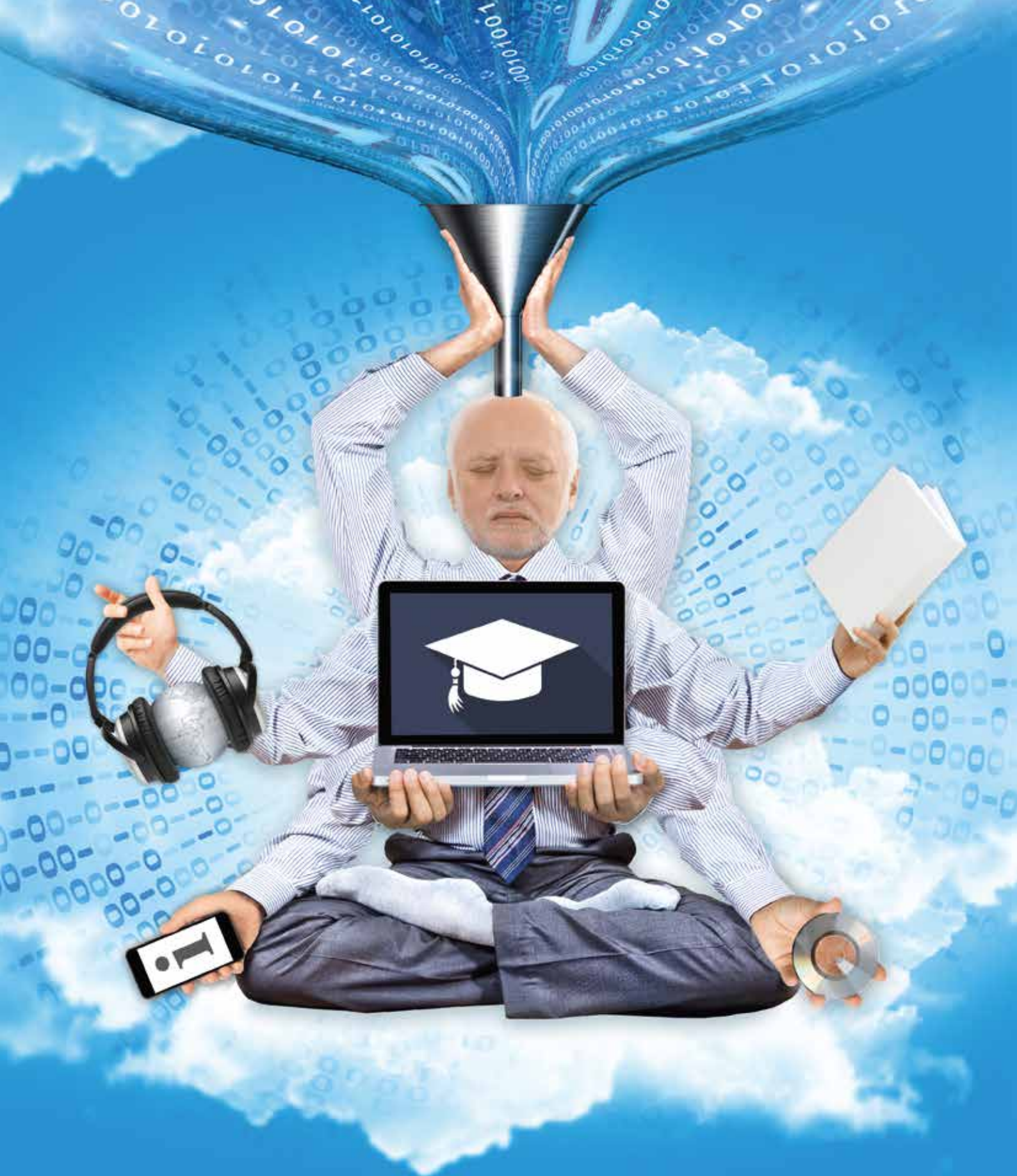
**At a glance**

- Work is becoming faster and more complex and takes more time.
- Hierarchies are being dismantled in favour of personal responsibility. This offers development opportunities but adds to the workload.
- Global and automated production processes with decentralised surveillance require attention around the clock.
- Many people feel disturbed by the constant arrival of information and other interruptions at work.
- The density of data and responsibility is increasing. The right priorities have to be quickly set and decisions taken.
- The boundaries between work and leisure are becoming blurred. This creates more freedom, but can cause overwork.
- Poor organisation burdens people because they feel insufficiently informed and their working hours are planned at too short notice.
- People find it more difficult to relax due to the feeling of having to be constantly available.
- Anyone who works too much has an increased risk of accidents, cardiovascular disease and overweight.

**45%**



**Working for the company from home.** Almost 45 per cent of working people work at least occasionally from home and one in three regularly.



**The challenge of demographic change:  
The need for life-long learning and openness to change**

# The challenge of demographic change

Demographic change is changing the age structure of the population in Germany considerably. While there were still more than 21 per cent of under-20s and only 15 per cent of the population were 65 or older in 2000, the forecast for 2030 predicts a pronounced ageing of society: 28 per cent will then be in the 65+ age group, while the share of under-20s will fall to 17 per cent.

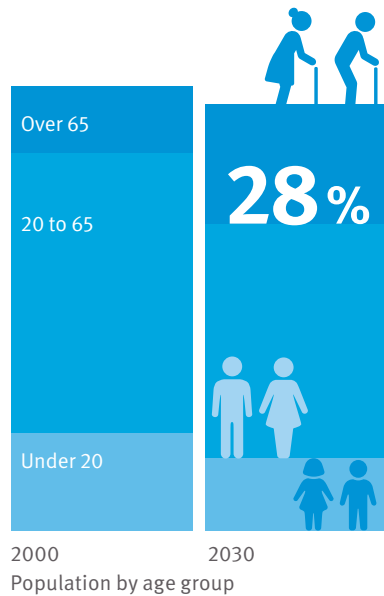
Executives and personnel managers often have reservations about older employees or job-seekers, questioning their creativity, openness, flexibility and ability to deal with pressure. But the abilities that people in employment have depend on a variety of factors: predisposition, lifestyle, psychological resources, diseases and stressing in previous home and professional life.

An appreciative management culture takes this into account and exploits the experience and special skills of older people, in mixed-age teams, for exam-

ple. Obviously, employees are exposed to various influences in the course of their working lives, which can result in disease, e.g. impaired hearing or psychological stress. In 2011, for instance, a third of early retirees gave up work because of mental illness, while the second-largest group suffered from diseases of the musculoskeletal system and connective tissue. Of the recognised occupational diseases, noise-induced hearing loss and cancer head the list.

In addition, older employees are more often affected by fatal occupational accidents than younger ones, particularly due to slips, trips or falls. A variety of factors can contribute to this: lack of attention, poor sight, declining ability to handle multiple tasks and declining physical fitness are examples. On the other hand, work experience is accompanied by a lower willingness to take risks, which speaks in older employees' favour. Non-fatal accidents occur less frequently, the older the employee is. However, the ef-

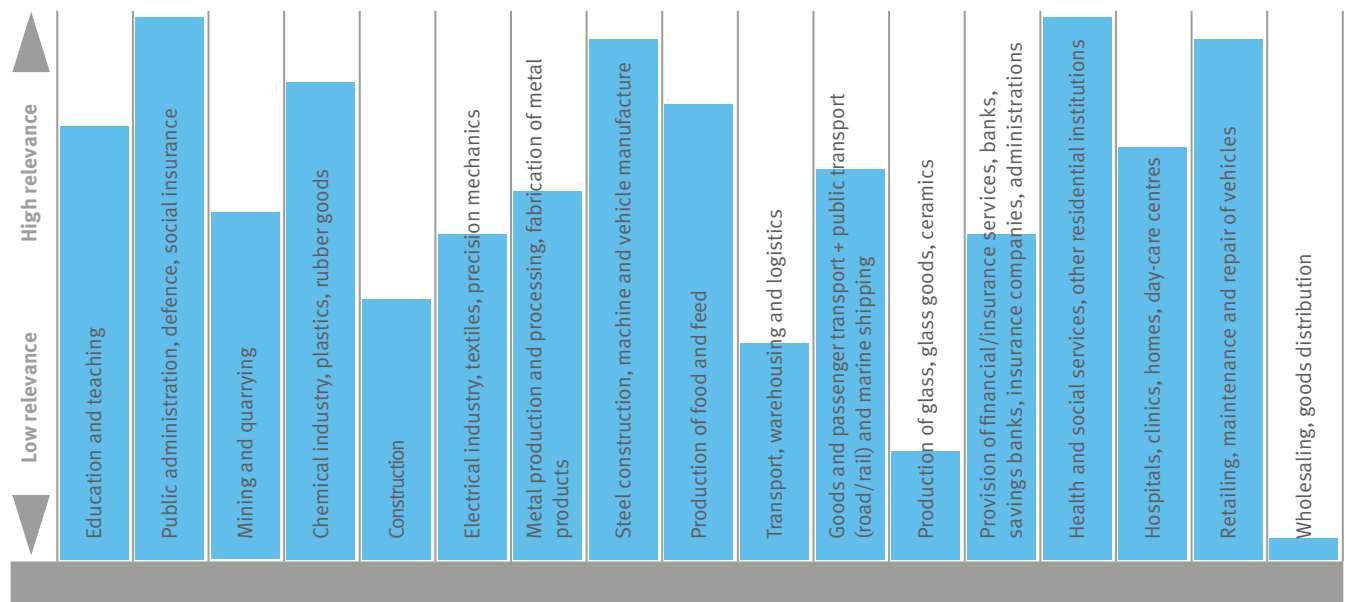
## More older people.



In the year 2030, more than a quarter of the population in Germany is expected to be over 65. The share of younger people will decline considerably by comparison. (Federal Statistical Office, 2015: Germany's population until 2060, 13th coordinated projection.)

## Growing share of older people

Relevance of the trend in different sectors





*What effects demographic change will have specifically in one's own institution and how it can be coped with are issues calling for expert advice and a demography check to yield the appropriate action.*

*We therefore consider it important for OSH experts to train additionally as "demography pilots".*

*Martin Ochsenfarth, Prevention Manager, German Social Accident Insurance Institution for the public sector in Schleswig-Holstein and Hamburg*

fects are usually more serious. Furthermore, the number of days lost is greater among older people as they take longer to recover. In addition, such accidents more frequently result in the inability to work.

Having a say in working hours is of high relevance for older people. Those older than 40 who do night and shift work are more likely to suffer from sleep disorders. In addition, older shift workers suffer more from coronary heart disease and depression. In-company activities to preserve health and employability can counter this.

While the factors described have always applied to older workers, the situation is exacerbated by the digitisation of the workplace. Older employees are less likely to possess basic skills in dealing with digital media than the up-and-coming

"digital natives". For the USA it has been proven that problems with new, technical working conditions encourage people to take early retirement. In the rapidly changing world of work, older people have to adjust and in some cases learn entirely new skills. The extent to which this is possible depends on personal abilities and motivation as well as on the company's support and instruction.

The quality of training and instruction on new technologies decides whether older employees can continue to perform their duties competently and reliably. As a basic rule, it can be said that workplaces and above all human-machine interfaces have to be designed to take account of age and ageing. And this is where digital innovations can help. The learning needs of younger and older people have to be satisfied with a variety of methods.

Other trends in the working environment more strongly affect over-40 employees: the growing use of information and communications technology (ICT) in all sectors is often accompanied by the intensification of work, among other things as a result of job cuts, the growing volume and density of data, and the erosion of fixed working hours. This trend is manifested in all areas where data are processed, i.e. in manufacturing industry as well.

Demographic change thus plays an important role in the chemical industry. On the one hand, older employees are at risk of being over-challenged if they have to learn new input methods and operate different machines at the same time. On the other hand, there is a risk of under-employment if too many tasks are transferred from people to machines. Everyday work is becoming more monot-



**40%** Over 50

**37%** 31 to 50

**23%** Up to 30

Percentage of reportable accidents on the way to and from work in 2013 due to slips, trips or falls.

**Older people have accidents more frequently due to slips, trips or falls (STF).** The share of STF accidents that have to be reported grows with increasing age.

onous while complex processes have to be monitored at the same time. This represents a major challenge for older employees in particular.

Many employees in the hospitality industry feel no longer able to meet expectations. 60 per cent are convinced that they will not be able to carry out their present work through to retirement age without limitation.

Very important is a glance at older employees in the health and social services where almost one in five days of sick leave in 2012 was attributable to psychological problems. Many employees in the health service are constantly confronted with death and misfortunes – a growing psychological burden. In addition, as a result of demographic change, there are more and more people in need of assistance, and the growing workload is borne by a small number of shoulders owing to the shortage of skilled staff.

Digitisation is aggravating the situation here as well: older doctors tend to be more hesitant about adopting technical innovations such as telemedicine than younger ones. Documentation in care institutions and hospitals is also increasingly performed electronically.

Older people in particular are more likely to suffer from combined forms of stressing, as is the case in the health, social and care professions: about half of those employed there do not believe they will be able to do their work for their entire

**At a glance**

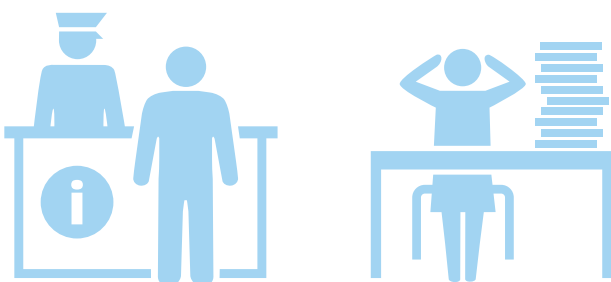
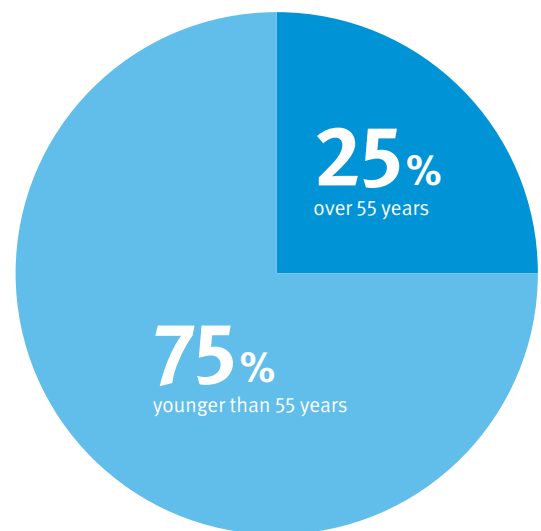
- Demographic change is having its effect on industry: a growing throng of older employees work alongside ever fewer young employees.
- Older people are often assumed to be less productive. Whether this is true depends however on personal factors.
- Work intensification, lack of exercise, overwork and under-employment at the workplace are frequently reasons for the large-scale discomfort of employees, and this becomes worse with increasing age. This applies particularly if they are joined by further factors such as noise or shift work.
- The risk of serious illness, fatal occupational accidents and long periods of sick leave is higher among older employees than young ones. Overall however, older people have fewer occupational accidents owing to their greater experience and caution.
- Digitisation poses major challenges for older employees, which they can master better with adapted control elements and suitable offers of training.
- Work organisation to take account of different age groups and ageing will become an important precondition for companies' business success.
- Today's young ones are the older employees of tomorrow: in-company activities to preserve health and maintain employability will grow in importance in times of demographic change.

working life. According to the iga.Report 2014, 48 per cent of men and even 57 per cent of women in social and educational professions cannot imagine being able to work until retirement age without limitation. In the health professions, the figures are similarly high. Anyone concerned with older employees, will also take a look at the public services, where 25 per cent of employees were over 55 in 2013. Even heavy physical labour as encountered in forestry and waste management enterprises is already being performed by older people. The lion's share of specialist pre-school teachers today is already aged

40 to 50. Only rarely do these employees work beyond the age of 60. According to a survey by the German Trade Union Confederation, only a quarter of pre-school teachers can imagine reaching retirement age in a good state of health if the present working conditions remain unchanged.

**Public services on the brink of a wave of retirements.**

A quarter of the 4.6 million employees in public services are older than 55 (as of 2013).





**The digital workplace: opportunities and risks**  
Digitisation is the key to survival –  
provided OSH is taken into account.



# The digital workplace: opportunities and risks

The Internet is the “steam engine of the mind”. This quote by journalist Frank Schirrmacher clearly illustrates the sheer magnitude of digitisation – with its positive and negative repercussions in all areas of life. It has already strongly changed our everyday lives at work and at home.

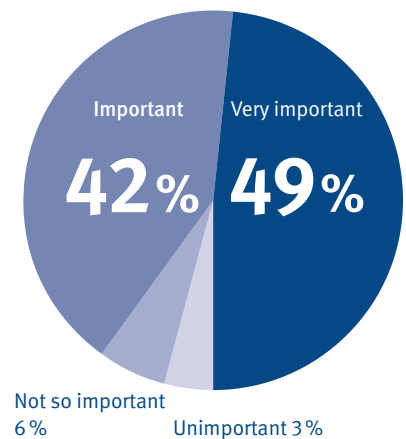
Like the invention of the steam engine in its day, digitisation is seen today as a key driving force for competitiveness in industry. Even now, for example, a tenth of industrial production worldwide is performed by robots.

Many people make use of the new opportunities of information and communications technology (ICT) for themselves, but often feel out of their depth. Above all when the new wave of digitisation brings with it extra work. While some people are overwhelmed by excessive demands, others find that their skills are becoming superfluous. In most sectors and professions, more and more people work at digital terminals. This starts in school where the interactive whiteboard is

replacing the blackboard and the computer the textbook. About 50 per cent of the gainfully employed work today at displays. Anyone who does most of his work in front of a monitor spends a lot of time seated and often suffers from lack of exercise. This imbalance often has a detrimental effect on the cardiovascular system and is associated with an elevated risk of type-2 diabetes and mortality. The most frequent complaints, however, are neck- and backache.

Almost 80 per cent of employees now use a computer and more than half the Internet for their daily work, while two thirds resort to their smartphones. ICT permits rapid access to large quantities of data and improves people’s accessibility and their amenability for networking. Many processes are now more efficient and also faster. This acceleration increases data flow and density. It is becoming increasingly difficult to set priorities and keep one’s concentration. If this becomes a permanent state, psychological stress can ensue with a higher risk of inappropriate decisions and accidents.

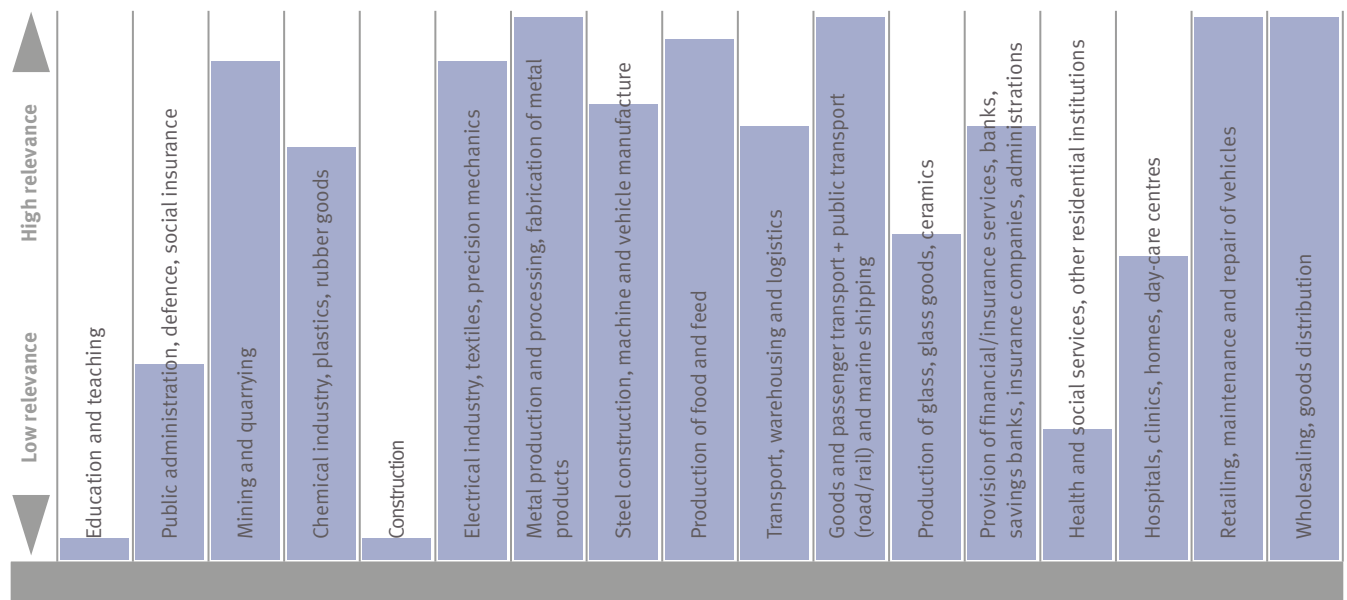
## Importance of digitisation for competitiveness



The vast majority of respondents consider digitisation important to very important for the future competitiveness of German industry. (BITKOM Study “Industry goes digital”, 2013)

## Networking, availability, surveillance by information technologies

Relevance of the trend in different sectors



People can now be as mobile as data themselves. Thanks to broadband networks and cloud computing, more and more IT-assisted activities are no longer tied to a fixed workplace with a PC and office chair. This independence and the greater scope for organising one's work are appreciated by many: a third of employees already work regularly from home – albeit under conditions that are not always the best ergonomically. The consequence is that almost 50 per cent of laptop users feel that they underperform due to musculoskeletal complaints.

The frequent changing of the work location by mobile employees is accompanied by having to repeatedly set up the workplace anew. And this means stress for two thirds of them. In addition, those affected often have to acclimatise to new devices or software. In combination with increasingly intensified work, a high mobility radius and precarious employment relationships, there is a risk of “interested self-endangerment”, i.e. employees voluntarily push themselves beyond their own limits. It is no longer the company but employees themselves who choose their working hours and break times, thus removing themselves from social control and direct supervision at the same time.

Because of the distances involved, classical control authorities are ineffectual. Shared and health-promoting activities such as joint breaks or the attendance of in-company health promotion schemes are hardly feasible. Personal encounters and exchanges of information become rare, and this can be accompanied by errors due to information loss and psychosocial stress.

Where the driving seat is also the workplace, electronic aids can take the strain out of work. They are used for navigation and for contacts with control centres. Driver assistance systems relieve employees of certain tasks or make them easier. This applies to all those who drive buses, locomotives, trams, trucks, vans and taxis or who visit customers by car. At the same time it is essential to ensure that concentration and ergonomics are not impaired.

Many people appreciate the independence gained through ICT. However, freedom is accompanied by the problem of constant availability and the fear of surveillance, e.g. due to check-up calls or GPS tracking. This idea fosters distrust and extra pressure among roughly 50 per cent of mobile employees. Constant availability also raises the risk of psychological stress.

While some employees are overstretched, others are faced with boredom. Be it due to isolation from the circle of one's workmates or because one's tasks are being increasingly taken over by ICT, a sense of uselessness and underemployment can arise with consequences for concentration and safety.

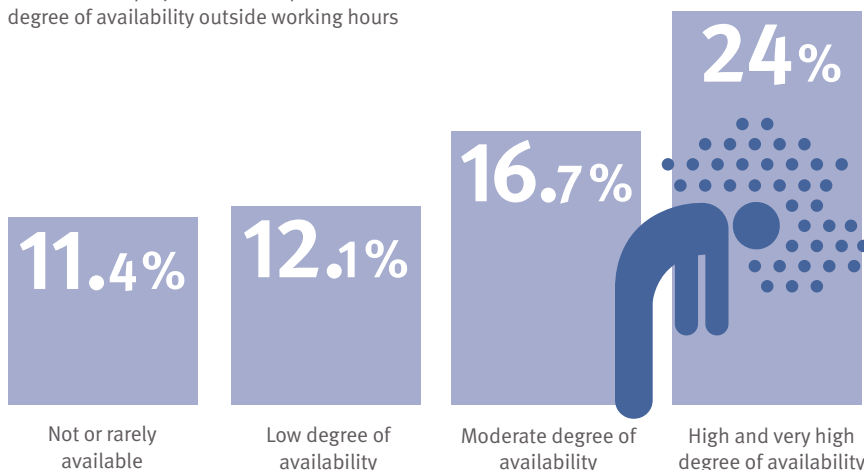
This also applies to workplaces in industry where digitisation is taking place in the form of increasing automation on the principle of “Industry 4.0”. Production processes are being intelligently interlinked via ICT, thoroughly organised on a decentralised basis and closely meshed with the associated services. This applies to all sectors, from wood and metalworking via retail, goods logistics, chemical and electrical engineering through

to food production and the health professions. Automatic identification systems like barcoding and their combination with broadband networks and cloud computing are changing everyday life. Collaborative robots are replacing the human workmate, just as head-mounted displays are superseding instructions from superiors: using the pick-by-vision method, employees are given instructions on a head-mounted display and pick the indicated goods. The human being becomes an integral element of holistic, digital production systems.

Concurrently, there is a structural shift towards the service and knowledge society. Workplaces are being abolished, e.g. in the maintenance and servicing of installations. At the same time, there is growing demand for specialists who monitor hardware, software and modules of new production plants.

Systems are becoming more complex, and badly designed human-machine interfaces can overtax employees. This has inevitable consequences for health and safety at work: experts of the social accident insurance scheme anticipate that many serious accidents are attributable to the failure of human-machine communication because insufficient attention has been devoted to important characteristics of human information input and processing and their limitations. If, for example, the human worker misinterprets system messages and acts inappropriately as a result, he or she can cause serious accidents from his or her position in the plant control centre or when driving vehicles or piloting aircraft.

Number of employees with a depression in relation to the degree of availability outside working hours



**Constant availability and depression.** Even a moderate degree of availability outside working hours is associated with an elevated risk of suffering from psychological disorders.

The risk is higher still for those with a high degree of availability: roughly one in four of them suffers from depression.



*In many companies, head-mounted displays have become commonplace in production, e.g. as an aid to the maintenance and servicing of machines.*

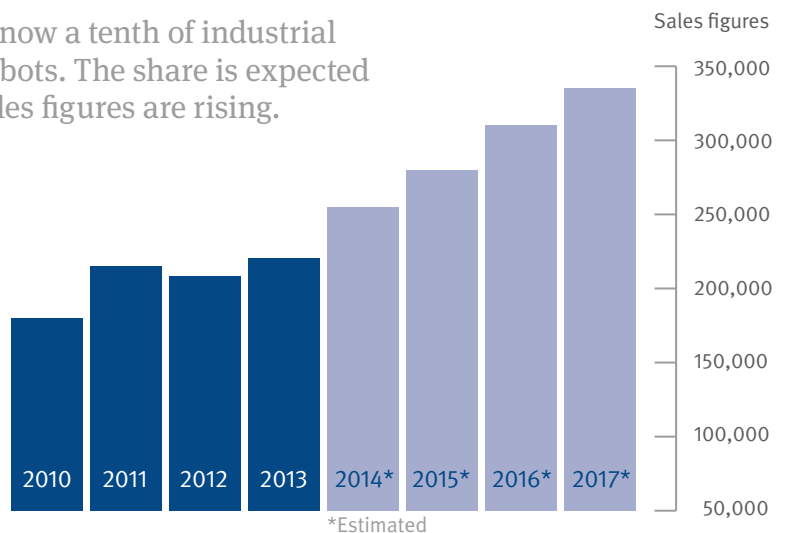
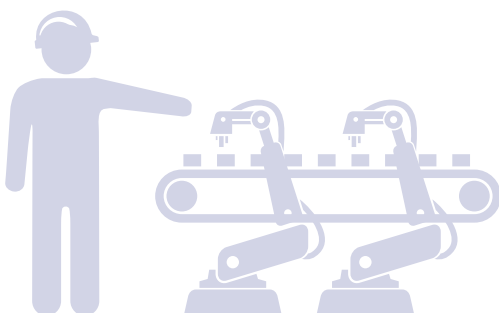
*As yet we know little about the opportunities, limitations and risks of head-mounted displays. Systematic studies are needed here to make targeted prevention possible.*

*Stefan Gros, Prevention Manager, German Social Accident Insurance Institution for the woodworking and metalworking industries*

**At a glance**

- In educational establishments, digital media are being increasingly used; they are also used for communication beyond their presence in the classroom.
- Knowledge is being increasingly imparted digitally, thus making learning possible at any time and in any place, e.g. at virtual universities.
- Since data processing and interchange are increasingly fast, more people and companies are making use of the opportunities for mobile work, e.g. by teleworking (home office).
- In workshops and production halls in all sectors, processes are becoming increasingly automated. The interfaces between humans and machines are becoming more complex.
- Digitisation is advancing rapidly and yielding a constant stream of new applications – and thus constantly changing the previously learned activities.
- The human worker is relieved of many, often difficult tasks. At the same time, new challenges are arising such as work intensification, the erosion of fixed working hours and fear of surveillance.
- Digitisation is changing traditional professions and gainful employment models and thus has an individual and a societal dimension.

**Industrial robots on the advance.** Even now a tenth of industrial production worldwide is performed by robots. The share is expected to increase to 45 per cent by 2020. The sales figures are rising.





**The pros and cons of mobility:  
Being mobile means freedom as well as risks  
due to dense traffic and communication on the road.**

# The pros and cons of mobility

Huge importance is attached to personal mobility in modern society. Almost all of us are expected to be mobile, and mobility is therefore a precondition for earning a living. This applies, for example, to mobile work, business trips, commuting to the place of work and foreign work assignments. Affected are crafts and trades, service technicians, the construction industry, professional vehicle drivers, trading, postal and logistics companies, firms of architects and engineers, banks and insurance companies, employees in goods and passenger transport, and temporary employment agencies.

All those whose work demands mobility are covered by social accident insurance whether they are on the way to and from work, on service trips or when driving motor vehicles or, on the plant site, industrial trucks.

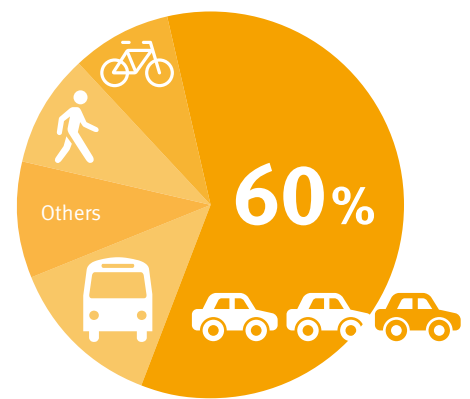
Business trips are occasional journeys to destinations more than 50 kilometres from the work location. They are increas-

ing across all hierarchies, although the need for mobility could decline due to the increased use of information and communication technologies (ICT), e.g. for teleworking or electronic trading. However, it would seem that the time saved by ICT tends to be used for developing new sales channels and territories.

If at least 20 per cent of a work activity is not performed at a fixed workplace, it is termed mobile. Of those who use a home office, at least 80 per cent see an advantage in the avoidance of commuting. On the downside, it is possible that employees miss personal contact with their workmates or participation in in-company health promotion activities.

Modern mobility therefore means more traffic and longer distances. Globalisation also plays its part in demanding reliable networking across borders, markets and sectors. Companies send out their employees worldwide. In addition to the diplomatic service, engineering and com-

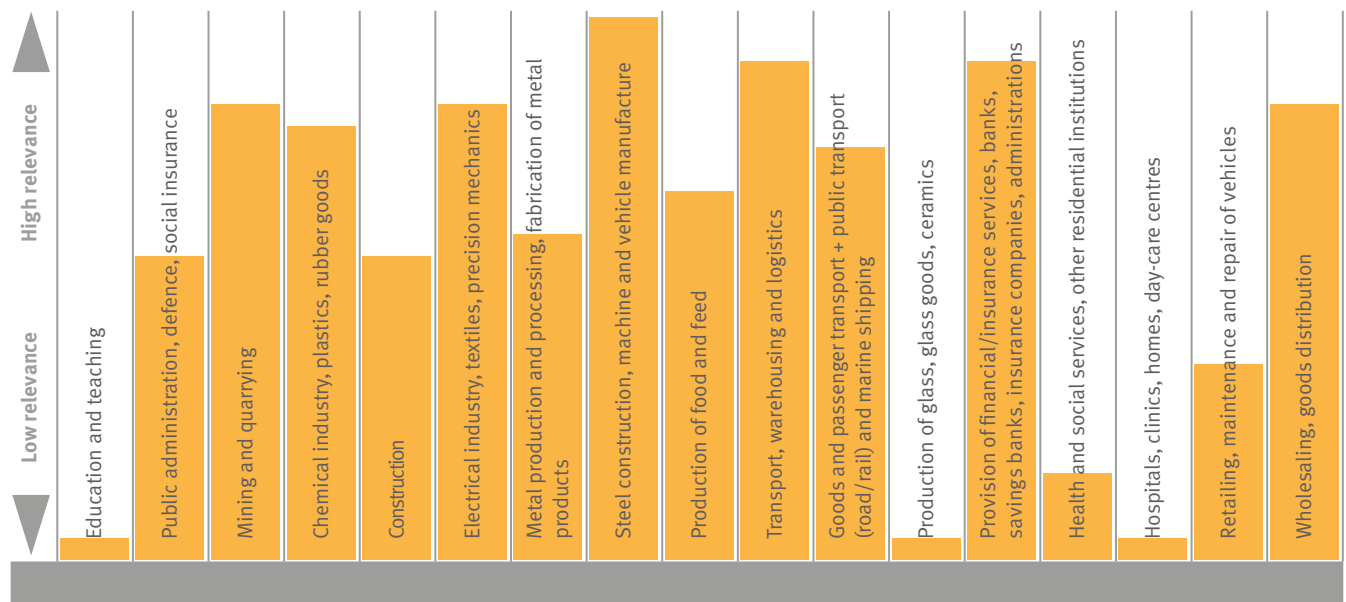
## Most people travel to work by car



The car is still the most popular means of transport. Almost 60 per cent of work commuters choose the car. (German Federal Statistical Office, 2009)

## Mobility requirements and traffic density

Relevance of the trend in different sectors





*The high expectations of employee mobility are strengthening our commitment to develop prevention measures that permit a health-promoting treatment of all forms of mobile working and particularly with mobile IT. This is taking place against the background of an increasing accident risk due to growing traffic density.*

*Dr Jörg Hedtmann, Prevention Manager, German Social Accident Insurance Institution for the transport industry, postal logistics and telecommunications*

mercial employees, crafts and trades now belong to the branches of employment affected by foreign assignments. Global mobility is commonplace even in small businesses and institutions – and it will probably increase by half again in the period from 2010 to 2020.

Long-distance commuting – on at least three days per week and at least 45 minutes per single trip – is a relatively new phenomenon. The reason is often restructuring measures at work. Long-distance commuting tends to affect not those with low skill levels, but rather employees with university degrees and a good income. Compared to 2004, the number of commuters with a socially insured job increased from a good 2.4 to over 3.1 million employees throughout Germany. Within

ten years, the number rose twice as fast as socially insured employment overall.

Travelling to and from work proves to be more dangerous than travelling for private reasons. While, statistically, trips to and from work caused 1.14 casualties per million kilometres, the figure is only 0.53 per million kilometres for traffic in general. A large proportion of work-related travelling involves personal motor vehicle use (cars or motorcycles).

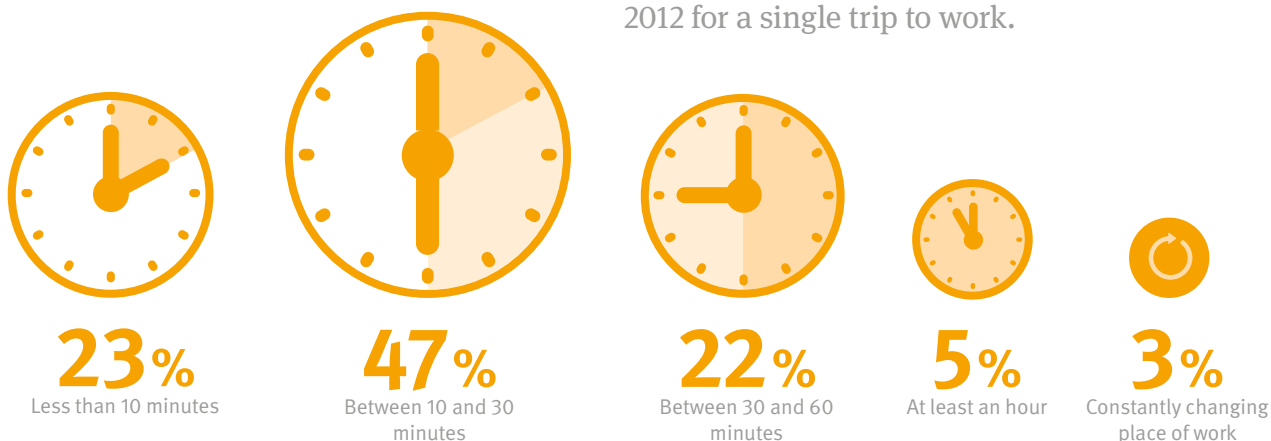
Anyone who spends a lot of time travelling to and from work, misses out on time spent with family and friends, often even with a healthy diet, exercise and health care. In its sick leave report in 2012, the scientific institute of the AOK (German social health insurance institution) con-

cluded: anyone who commutes long distances has a 20 per cent higher risk of suffering from psychological disorders.

In fact, the job and training account for only a good sixth of traffic volume – leisure and shopping trips make up the lion’s share. The number of trips per day for leisure and shopping has increased in the last decade from 138 to 150 million and the associated traffic density is increasingly hampering professional drivers.

In addition, there is the shift of traffic from rail to the road. The number of registered vehicles – despite a shrinking population – is predicted to increase by 8.8 million and total freight traffic by 50 per cent by the year 2030. The benefi-

**Driving to work.** Time spent by working people in 2012 for a single trip to work.



ciaries of digitisation and globalisation are the postal services that are profiting from the boom in online commerce. The market for parcel services in Germany is one of the sectors with huge growth expectations of up to 20 per cent. At present, the growth in goods transport is causing traffic volumes to increase and with it the accident risk. Postal services often operate under deadline pressure or park briefly on public roads in order to shorten the delivery distances.

Work intensification and stress play an important role in transport – not only on construction sites and plant sites, but also on public roads – as a cause of accidents: inattention, fatigue or aggressive behaviour behind the wheel as well as inadequately secured loads are the consequence. Road safety is closely linked

to the process of digitisation. With the arrival of digital aids in vehicles, drivers can plan their routes on the road, make appointments and communicate with control centres and dispatchers. A variety of assistance systems make driving easier. This applies to commuters in particular and to mobile employees in general whose driver’s seat is also their workplace, e.g. in passenger and goods transport, and on service technician and field service trips.

The downside is that accidents are occurring increasingly due to secondary activities such as the operation of the satellite navigation system and other software, phoning and typing messages. It is now assumed that one in ten road accidents is largely caused by distraction due to ICT. Mobile ICT in heavy motor vehicles

such as trucks or construction machines is often used in unfavourable ambient conditions such as noise or poor lighting, which considerably impairs operation of the often tiny devices. In addition, there is a lack of good mounting systems in vehicles, and devices can block the view or fall down and become a dangerous missile on bends or when braking.

**At a glance**

- More and more people commute ever longer distances between home and work.
- The growing use of ICT brings with it the risk of distraction while driving a vehicle and places excessive demands on some employees.
- Assistance systems handle some driving activities themselves or make them easier, but can also result in distraction from actual driving.
- The car is still the most frequently chosen means of transport: some 60 per cent of commuters use their own cars.
- The typical “weekend commuter” tends to have a full-time job and is highly qualified, probably male and the main earner.
- On the roads, the growing traffic density poses an accident risk, particularly in combination with stress.
- Anyone who travels a lot has less time to spend with family and friends and on their health.
- Globalisation and digitisation contribute to greater traffic volumes.

**Long times spent at the wheel are a strain on the nerves.** From 45 minutes per trip – i.e. 90 minutes per day – commuting causes extra stress.

**45 minutes**





**Use and abuse of the musculoskeletal system:  
Under- and over-stressing are bad for the body.**



# Use and abuse of the musculoskeletal system

Ergonomically designed workplaces are adapted to the needs and abilities of the human user. Where this factor is neglected, employees suffer from musculoskeletal complaints – particularly if longer working hours are accompanied by unfavourable posture, severe physical strain or lack of exercise. Worldwide, musculoskeletal diseases affect a large proportion of the older population and are the main cause of chronic pain and physical functional limitations.

Prolonged and uneven stressing of the musculoskeletal system occur during many activities and in many sectors: in all those areas where people stand or sit for a long time, where there is a lack of exercise, where there is a need for unfavourable posture such as working in a kneeling position or overhead, where the same movements are repeated for prolonged periods and, finally, where loads are lifted and shifted. Almost 20 per cent of employees complain of awkward bodily postures or heavy loads. About the same

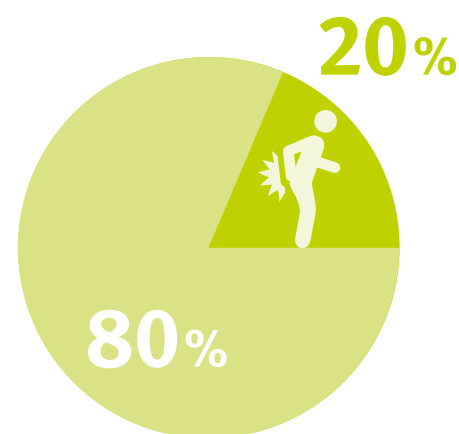
proportion of sick notes is attributable to musculoskeletal disorders.

Deformation of the postural and locomotor system often starts during school years, by carrying excessively heavy school bags and the lack of exercise involved in getting to and from school. All-day schools in particular promote the long-term, monotonous sitting posture. The general lack of exercise during everyday school life also has its effect. In the last decade there has been an increase in backache diagnosed among children.

In working life, long-term sitting continues. In many jobs, sitting at a computer is a source of uneven stressing – in a fixed position for many hours. Anyone who enters data in this posture often complains of musculoskeletal disorders.

The often highly specialised tasks call for high concentration, but are physically very unbalanced. Call centre agents, for example, sit throughout their working

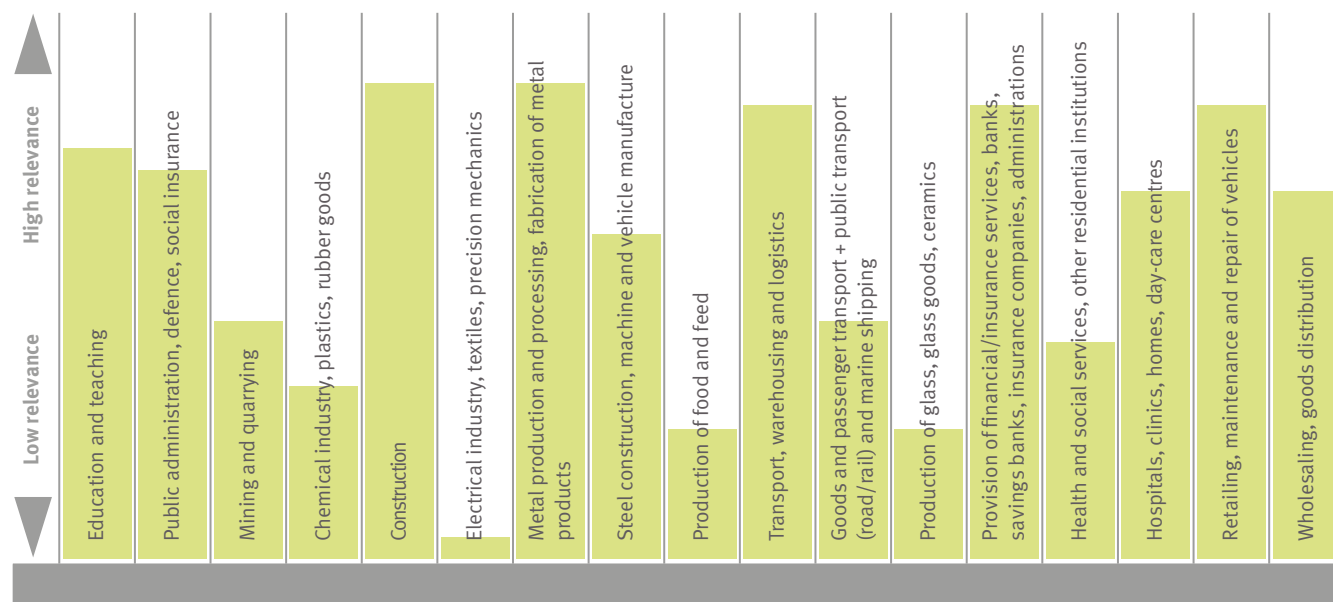
**Back problems are the reason for one in five sick notes.**



In 2014, about 126 million days of sick leave were attributable to stressing of the musculoskeletal system. This amounts to roughly a fifth of all sick notes. ([www.baua.de/De/Publikationen/Fachbeitraege/Suga2014.html](http://www.baua.de/De/Publikationen/Fachbeitraege/Suga2014.html))

## Ergonomic imbalance

Relevance of the trend in different sectors



day, and the same is true of professional drivers, who are often affected by slipped discs. Long-term sitting is also associated with an elevated risk of type-2 diabetes and mortality.

Frequent companions during the seated working day are tension and pain. Suitable equipment such as large, high-resolution monitors, ergonomically designed input devices and individually adjustable office furniture diminish the burden. But particularly in those jobs where work at displays is not the main task, the workplaces are often poorly equipped. Mobile employees also often have to contend with unergonomic working conditions. The workplace in motor vehicles is cramped, and the displays of the necessary information and communications technologies (ICT) are often too small. Almost half of laptop users complain of impaired working conditions.

Ergonomic stressing often is not the only factor. In many cases, it only causes complaints in interaction with other ambient conditions. Pressure to deliver results and other psychological burdens at work can play a supplementary role, as well as noise, climatic conditions or an unhealthy life-style. The interactions in the event of such combined stressing still require further research.

Prolonged or uneven ergonomic stressing – despite the increased mechanisation of everyday working life – is still surprisingly often encountered in manufacturing industry, commerce and logistics

and many services: lifting and carrying, forced postures, activities involving high physical effort or exposure to high physical forces, and repetitive movements. Temporary employees, who are assigned such tasks with above-average frequency, report pain in the back, neck, legs and arms – and this despite their relatively young age. 44 per cent report three and more musculoskeletal disorders.

Where people and machines interact increasingly closely, an ergonomically designed interface is essential. A configuration in which the freedom of movement is limited or the machine cannot be individually adapted to its operators results in faulty posture. Thus two thirds of employees in the food industry very often or often work in a crouching position or overhead, spend a lot of time standing or adopt other unfavourable body postures. Almost 50 per cent have to do heavy physical work.

In the hospitality industry, a quarter of days lost to sickness are attributable to musculoskeletal diseases, and in commerce almost a quarter. 54 per cent of those who work in warehouses report having to do heavy physical labour. Pickers in warehouses of online mail order companies walk distances of several kilometres day after day when putting together orders.

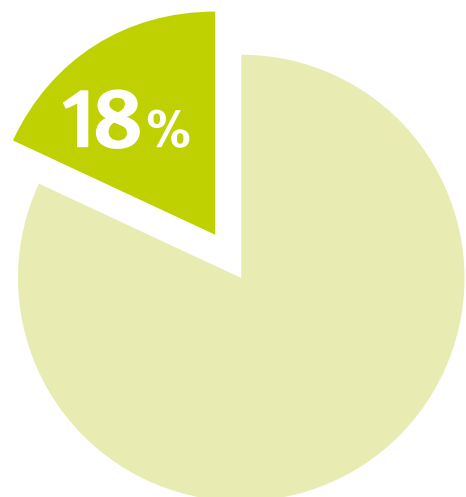
A large proportion of teaching staff in schools and of teachers in child day-care centres suffers from musculoskeletal complaints. The back, neck and upper

extremities are most frequently affected. In the case of day-care centre teachers, sitting low down in a bent or twisted posture is considered the main cause of pain.

Equally unevenly stressed are nursing staff. Particularly affected is the back. Responsible for this is not only lifting and carrying tasks, but also static body posture and frequent flexure of the trunk. Another endangered job sector is waste collection. Owing to the multi-bin system on vehicles and job cuts, employees are heavily stressed. This is exacerbated by the aggressive behaviour of other motorists. Similar factors also apply to road cleaning employees.

Musculoskeletal diseases are the prime cause of chronic pain and physical functional limitations – and hence of loss of quality of life. Psychological disease can also ensue from this. Accident risks are also caused by uneven stressing and its consequences. Muscle strain and limited mobility increase the probability of having an accident due to slips or trips.

**Ergonomic stressing at work.** 18 per cent report a difficult body posture and heavy loads as the biggest obstacle to physical well-being.



## At a glance

- Prolonged and/or uneven ergonomic stressing is still high in many sectors: in production, commerce, logistics and many service sectors.
- Musculoskeletal complaints often result from combined stressing, e.g. when ergonomically unfavourable conditions coincide with work intensification and other psychologically stressful factors.
- Musculoskeletal diseases are the leading cause of chronic pain and physical functional limitations. The associated loss of quality of life can also encourage psychological disease.
- Prolonged activities in forced postures can result in musculoskeletal complaints and general exhaustion, particularly among older employees.
- As a result of information and communications technologies (ICT), the proportion of display workstations has risen significantly. They are still in need of ergonomic improvement. The back, arms, hands and eyes are subject to strain. Mobile employees are particularly affected.
- Continuous sitting at monitors poses a health risk. In view of the growing number of ICT-assisted workplaces, the problem is becoming more and more acute.
- At display workstations, up to 85 per cent of daily working hours are spent seated.
- According to estimates of the World Health Organisation, the number of people with bone and joint disease will double from 2000 to 2020.



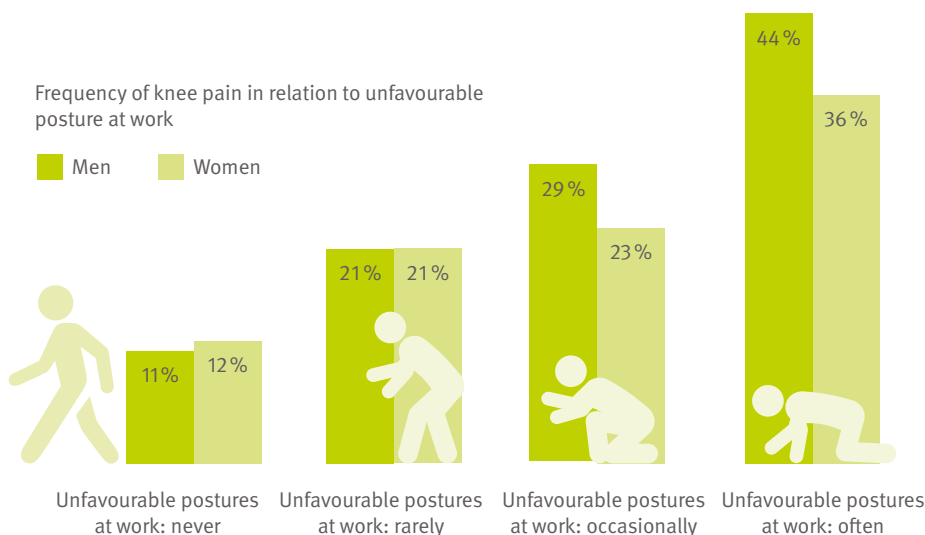
*Sometimes it's the little helpers that businesses are happy to accept: shopping aids for ergonomically favourable equipment, such as lifting aids or pallet inverters, for example, can be an important way of preventing physical strain at the workplace.*

*The use and spread of such aids can be encouraged with competitions.*

*Dr Klaus Schäfer, Prevention Manager, German Social Accident Insurance Institution for the trade and distribution industry*

Frequency of knee pain in relation to unfavourable posture at work

■ Men ■ Women



**Working in unfavourable body postures encourages knee pain.** Not even 12 per cent of employees who never adopt unfavourable postures at work suffer from knee pain.

On the other hand, 44 per cent of men and over 36 per cent of women who often work in unfavourable postures suffer from knee pain.



**Lack of expertise means lack of safety:  
If those who operate machines are out of their depth,  
they cannot always handle the risks.**

# Lack of expertise means lack of safety

Autonomous production systems are capable of relieving people of routine tasks. But the job stays demanding. For instance, the monitoring of these systems calls for constant attention for the rare instance of a malfunction occurring. And then it is not sufficient to simply react to signals. The operator has to comprehend the system as a whole with all its interactions. If the operator lacks the requisite skills, there is a greater risk of error and of employees feeling out of their depth.

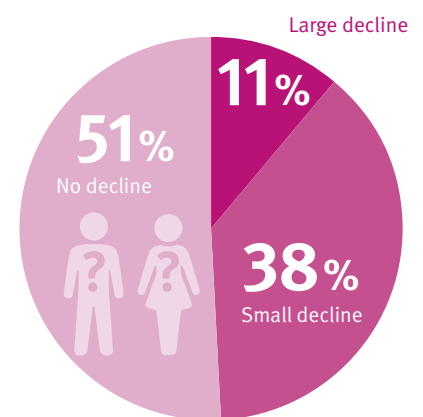
At the same time, there are fewer and fewer skilled people available on the labour market. The Federal Employment Agency predicted in 2015 that, owing to demographic developments, the pool of employable persons – i.e. the total number of people in Germany theoretically capable of gainfully working – will fall by about 6.5 million by 2025. And this means that the supply of skilled staff is declining.

According to calculations of the Institute for the Study of Labour, there will

be a shortage of some 240,000 engineers by the year 2020. Many companies are reckoning with this as a specific business risk. Nearly one in two small or medium-size businesses is expecting sales shortfalls in 2016 because of the lack of skilled staff. More than half of companies are searching for manpower because they are losing skilled staff due to retirement. When positions become vacant, it is often up to the remaining employees to plug the gaps by working more and longer. Heading the list of the expected consequences of the shortage of skilled staff is the extra burden on the existing workforce, which can result in physical stress and strain.

A high level of prolonged stress can harm the person's health and result in mental illness like depression. Extra work and the acceptance of extra duties can also have consequences for physical health. Nevertheless, attempts are often made to keep older skilled staff longer on the payroll. Small and medium-size businesses

## Declining sales due to the shortage of skilled manpower.



Almost one in two small and medium-sized companies is expecting a decline in sales due to the lack of skilled staff. (*Business consultants Ernst & Young, 2016*)

## Shortage of skilled staff

Relevance of the trend in different sectors



are particularly badly hit by this problem. First of all, it is more difficult for them to implement a long-term staff recruitment policy. And, secondly, they invest in the training of young people, but the skilled youngsters are frequently “poached” by large companies that can often offer employees more than a small company can.

In the construction sector, the worries about the short supply of skilled staff are particularly pronounced. More than 50 per cent of companies are already lamenting a shortage of technically skilled personnel – a dangerous trend as construction sites are dangerous workplace in any case. Given a shortage of experience and training, e.g. in dealing with bad weather conditions or protective devices, the risk of serious accidents is increasing. Deadline pressure and the intensification of work additionally burden insufficiently skilled staff.

In industry, 25% of entrepreneurs share the worry about the shortage of skilled manpower. In high-risk areas like the pit and quarrying industry particularly, this concern is closely associated with safety issues. Because of the considerable physical strain due to their duties, many employees in this industry take early retirement, and in many cases the vacant positions can only be filled with unskilled or insufficiently trained workers. Not only is the handling of the equipment risky, but also that of the toxic wastes that arise in mining. If skills are lacking here, the risks for people and the environment are high.

The chemical industry is also concerned about the shortage of skilled staff – a sector in which process automation is advancing rapidly and in which manual tasks are on the decline. Simple jobs for which a high level of training is not required are becoming scarce. The industry thus needs more qualified staff for the skilled operation and maintenance of complex installations.

The picture is the same in the glass and ceramics industry. Highly skilled staff, e.g. in the engineering sciences, are sought, firstly, to fill positions that have become vacant and, secondly, because the skills level is rising. Ever greater specialisation is necessary because of the high degree of automation. The special competence of the European glass industry is regarded as one reason why it is staying competitive despite higher wage costs than other regions – but only as long as it can obtain skilled staff.

Transport and logistics, sectors with above-average growth, also have big demand for skilled staff. Forwarding companies feel that their business development is currently being jeopardised by the lack of drivers, with far more going into retirement than can be taken on to replace them – the situation is becoming more and more acute. To cover needs in the logistics sector, some 25,000 new truck drivers would have to be trained each year. The actual figure is only a tenth as high. If this trend continues, there will be a shortfall of several hundred thousands of skilled employees by the year 2025.

Behind the wheel of buses and trams of public transport networks, many a job is also vacant. The trend among public transport employers to deal with the shortage of skilled staff by making concessions in their recruitment efforts is particularly critical, as this endangers the safety and health of third parties to a high degree. Most companies in the hospitality industry are also expecting an intensification of duties and extra work as a result of the shortage of qualified personnel. The industry is noted for its high turnover rate and a high training drop-out rate.

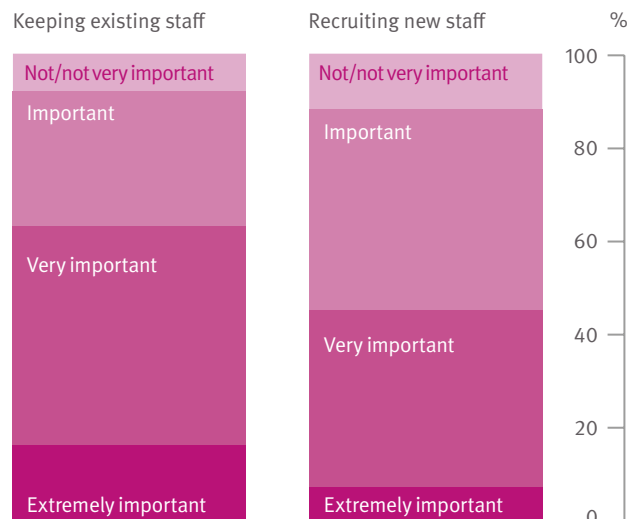
The shortage of skilled labour and economic circumstances in almost all sectors are causing staff to be taken on temporarily. Since these employees move regularly from job to job and work in unfamiliar surroundings and under unaccustomed conditions and have to acclimatise again and again to new processes, there is a greater chance of mistakes and hence the risk of long-term staff and imported temporary employees endangering one another.

Not only production and commerce are affected by the shortage of skilled staff, but also the health service and public life. In the health professions, the lack of skilled labour is putting the remaining workforce under greater pressure. The employment of insufficiently skilled staff in homes, out-patient facilities and hospitals is also increasing the risk of infection. In public administrations, there is already a shortage of over 15,000 specialists in financial

**Countering the shortage of skilled staff:**

**Priority of keeping existing staff over recruitment of new staff.**

63 per cent of companies regard keeping existing staff as being very or extremely important. Recruitment of new staff at 45 per cent comes only the fifth in the list of priorities.



http://www.esceurope.eu/fileadmin/user\_uploads/campus\_Berlin\_uploads/Human\_Resource\_Management/2011-12-08\_Talent\_Management\_im\_Mittelstand.pdf

administration tasks, and over 10,000 policemen and -women. Road maintenance companies and food control services are also affected by the shortage of skilled staff. This ultimately affects the basis for good training: pre-school teachers rarely work beyond the age of 60, and 42 per cent of school teachers are already older than 50. Even today, there is a lack of about 20,000 specialist teachers.



*Companies today attach great importance to keeping existing skilled staff.*

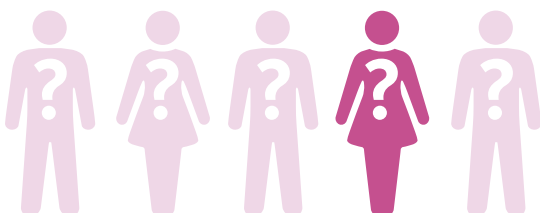
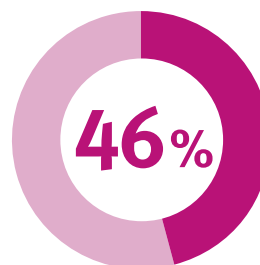
*We as accident insurers have the unique opportunity to show to what extent comprehensive workplace safety and health and a lively prevention culture are capable of keeping skilled employees at the company.*

*Helmut Ehnes, Prevention Manager, German Social Accident Insurance Institution for the raw materials and chemical industry*

### At a glance

- The shortage of skilled staff is threatening to become more acute due to demographic trends.
- Many entrepreneurs regard the lack of skilled staff as a specific business risk.
- In industry, age-related departure is the cause of one in two positions vacant. But the high technological requirements are also fuelling the demand for skilled employees.
- The shortage of skilled staff often means extra workload for the existing workforce, which can result in physical and psychological strain.
- As a consequence of the skills shortage, unskilled employees are sometimes called upon to operate complex machinery.
- Hazards are often difficult to recognise for unskilled staff. The resultant inappropriate action increases the accident risk.
- There is a risk of the requirement profile being downgraded so that jobs can be filled or gaps plugged with temporary staff.
- School and vocational training are the foundation for proper training. But there is already a shortage of staff for training

**46 per cent of companies in Germany are having trouble filling vacant positions (2015).**



#### Top 10 of the positions most difficult to fill in Germany

1. Skilled work/crafts & trades
2. Management
3. Technical
4. IT specialists
5. Engineering
6. Finance and accounting
7. Sales employees
8. Sales management
9. Drivers
10. Medical professions (excluding care staff)



**Jobs on demand as a risk factor:  
Precarious employment creates fear and  
impairs safety and health.**



# Jobs on demand as a risk factor

Digital change is bringing greater flexibility to working hours and the work location and is enabling many employees to reconcile their job, family life and leisure: exercise, sport, friends, culture – all these are factors that combat stress at work. Another trend is that new management methods give employees greater freedom to organise their work themselves. Flattened hierarchies with increasing complexity of the demands of the job are distinctive of these new organisations. They build on the autonomy and personal initiative of individuals who work in temporary, decentralised teams.

Both trends – digitisation and new styles of management – are opening up opportunities to make employment relationships freer. Employees benefit from this independence although certain rules must be observed in the configuration of these employment relationships.

At the same time, rapid technological progress is accompanied by a change in expectations and values in society. Also affected is the role of work for individual

life-styles: many women and men want to be treated as equals at work and have different focuses at different stages in their lives – be it for their children, looking after family members, for travel or new and personal challenges.

At the same time as this, globalisation and competition are changing structures at work both in production and in service businesses. The market now exercises a great deal of influence on employment contracts and fewer permanent jobs are being created. For the work arising, job-on-demand models are being increasingly applied. While employees benefit from the greater freedom of such employment relationships, companies aim for greater flexibility and lower payroll expenses. In the future, a considerable proportion of work will diverge from the present norm: (involuntary) limited working hours, time-limited, project-based and result-oriented.

The consequence is an increase in precarious service contracts, i.e. largely unprotected employment relationships, where the remuneration is rarely suf-

More and more part-time and temporary work.

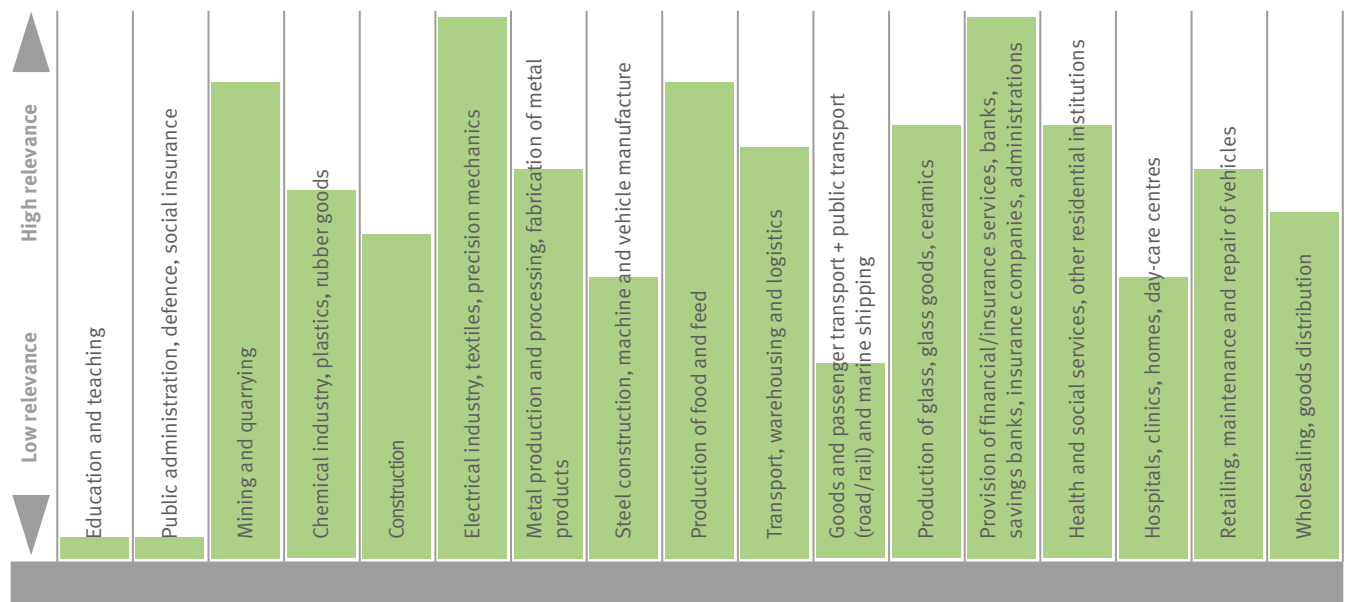
39%



39 per cent of all dependent employees in Germany in 2015 were working in part-time, temporary or mini-jobs. (WSI-Datenbank „Atypische Beschäftigung“, [www.boeckler.de/wsi\\_5859.htm](http://www.boeckler.de/wsi_5859.htm))

## Job insecurity and precarious employment

Relevance of the trend in different sectors



efficient for subsistence. The spectrum of non-standard or precarious employment extends from – frequently desired and also collectively agreed – part-time work via time-limited employment relationships, service contracts and temporary work through to one-man businesses, mini-jobs and internships.

An example of modern forms of work is crowdworking. On Internet platforms, contracts are offered for fixed fees or prize money. Crowdworkers all over the world compete for this contract. According to a report of the International Labour Organisation in Geneva, some 20 million “workers on demand” are already part of this economic system on eleven large crowd platforms worldwide. Of these, 750,000 can be found in Germany, the German Crowdsourcing Association estimates.

Outsourcing, i.e. the transfer of corporate tasks and structures to external or internal service providers, is often adopted in order to get around agreements and promote precarious employment.

For instance, outsourced cleaning staff in the hospitality industry are often paid a performance-based wage, i.e. on the basis not of the hours worked but of the number of cleaned rooms per hour.

Temporary work is another option for temporary employment relationships for both highly skilled and simple tasks. People often gain permanent employment in this way because they are taken on in a fixed employment relationship on expiry of the temporary employment period.

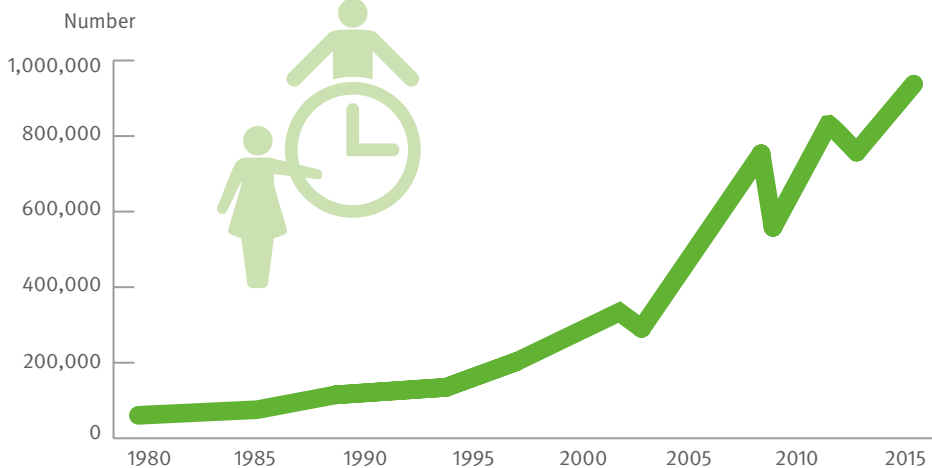
But temporary work can also be the reason why people are paid differently – often for the same work in the same firm. According to the Federal Employment Agency, some 961,000 people were employed temporarily in Germany in 2015. Almost a third and hence most temporary workers are employed in the metal and electrical industry. In some cases, the proportion exceeds 40 per cent of the total workforce, particularly in service companies, e.g. cus-

tomers service centres, for energy suppliers. In addition to highly skilled manpower which is responsibly deployed, a large number of so-called helpers are taken on, e.g. for the lifting and carrying of loads. These auxiliary workers often earn up to 30 per cent less than the permanently employed staff. The strenuous work is often accompanied by physical illness.

As a consequence, there are 60 per cent more days lost due to sickness among temporary workers due to musculoskeletal illness than otherwise. Since they are often insufficiently integrated in the host company’s OSH organisation, temporary workers also have an above-average accident rate. This triangular relationship between workers, host company and agency yields conflict potential due to unclearly defined responsibilities or inadequate communication and can hamper workplace safety. Service contracts as a private-law agreement on the exchange of clearly defined services also make it possible to recruit in some cases

*New forms of work are growing noticeably in importance and are changing existing company structures fundamentally. These processes of change place high demands on management. For this, the German Social Accident Insurance Institution for the administrative sector provides further training specifically to support companies and the insured.*

*Dr Andreas Weber, Prevention Manager, German Social Accident Insurance Institution for the administrative sector*



**Increase in temporary work in the last 35 years.** The number of employees working temporarily has risen steadily since 1980. In 2015, German companies recruited almost a million employees without permanent contracts.

well-paid specialists for a limited time. The mutual obligations of a service contract can be a tenable basis for a clearly defined relationship from which both sides benefit. However, service contracts also make it possible to employ the often poorly trained for low pay.

In the hospitality industry, precarious employment is more widespread than in almost any other sector. Almost 50 per cent of employees are under-employed and two thirds receive a low wage. Often coupled with a time limit, these forms of employment are often seen as a means of improving flexibility. In the food industry, almost 60 per cent of persons who do not belong to the main workforce are employed under service contracts – with a growing trend.

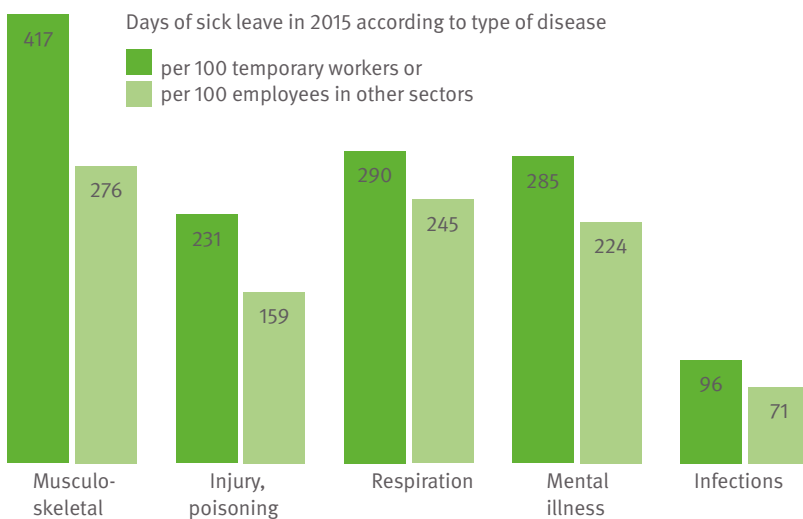
Precarious employment is accompanied by uncertainty and fear – combined with the associated risks for physical and mental health. Physical strain and psychological pressure have their effects on the cardiovascular system. A current study shows that employees who consider the uncertainty of their own job as high – taking age into account – have a 32 per cent higher risk of heart disease within the next ten years compared to employees with low job uncertainty. Further health impairments are on the cards when work intensification and precarious employment coincide. Driven by competition, companies, in commerce and logistics for example, make great efforts to focus on the customer's needs. The level of expectation has risen

here, and deliveries have to be executed in extremely short times. To respond accordingly, employees often have neither the time nor the scope to influence the process. They therefore run the risk of annoying the customer, but also of putting their already precarious employment at risk. Nevertheless, they attempt to secure their position by adopting the desired behaviour.

The in many cases low pay in precarious employment relationships can sometimes only be ameliorated with overtime or multiple jobs. The additional stress then takes its toll, e.g. with the risk of burnout or depressive disorders.

**At a glance**

- New management methods and digitisation are bringing more flexibility to working hours and the work location.
- Employees have greater scope for shaping their employment. The meaning of work can change greatly in different phases of life owing to personal or professional priorities.
- New fields of gainful employment are coming into being – often inspired by the individual. This not only changes the supply of labour, but also the structure of demand for manpower.
- Jobs on demand: for competitive reasons companies are increasingly filling vacant positions not with employees under permanent contract, but are using self-employed persons, service contracts, temporary work, franchising and outsourcing systems for providing work temporarily.
- There will be a multitude of employment relationships, even within a single company.
- Precarious work often means uncertainty and psychological pressure that can have a detrimental effect on physical and mental health.



**Temporary work has effects on the body.** Sick leave is higher among temporary workers than in the overall workforce.



**The nuisance of noise:**  
Noise has a variety of often unnoticed effects on people – with consequences for body and mind.

# The nuisance of noise

Noise is sound, which is transmitted in the form of fluctuations in air pressure. It is audible to us from a sound pressure level of 0 dB and painful from 120 dB. Just a few decibels more can make a huge difference. Each increase in 10 dB is experienced as a doubling of the volume.

Ambient noise such as caused by traffic is omnipresent. In its research and prevention activities, the social accident insurance system concentrates on noise at the workplace. Firstly, on “loud” (aural) noise that damages the hearing. And, secondly, disturbing noise (extra-aural), which has an effect on the body via the mind.

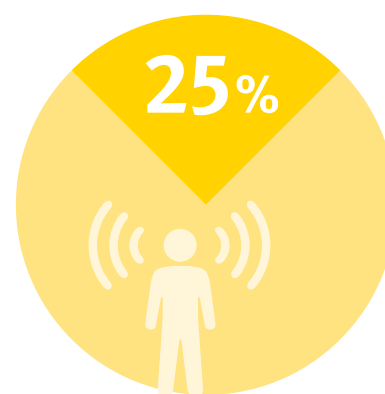
Noise is a classical field of occupational safety and health and is well researched. The sense of hearing is damaged when a person is exposed to at least 85 dB(A) for eight hours per day over a period of many years or to a particularly loud sound event such as an impact or explosion. At 40 per cent, noise-induced hearing loss is the most frequently recognised occupational disease. Irreparable damage to the sense of hearing takes

place gradually, so the long-term effects of noise are often underestimated. Many people are still unaware that hearing loss is incurable.

One in five persons aged 50 to 65 already has hearing loss in need of treatment. Even adolescents are affected, as listening to loud music at home plus noise at work can amount to a severe stressing of the sense of hearing. In addition, the recovery time so important for the ear is also too short. Ambient noise, from traffic for example, exacerbates the situation.

Despite successes in occupational safety and health – such as low-noise equipment and improved hearing protection – the subject of noise remains on the agenda. Some four to five million employees in Germany are exposed at work to noise exceeding 85 dB(A), which is defined as harmful to health. The accident insurance institution for the building trade alone spent over EUR 17 million on treatment, rehabilitation and pensions for more than 6,300 noise victims in 2015 alone. Particularly affected by noise pollution are not only employees

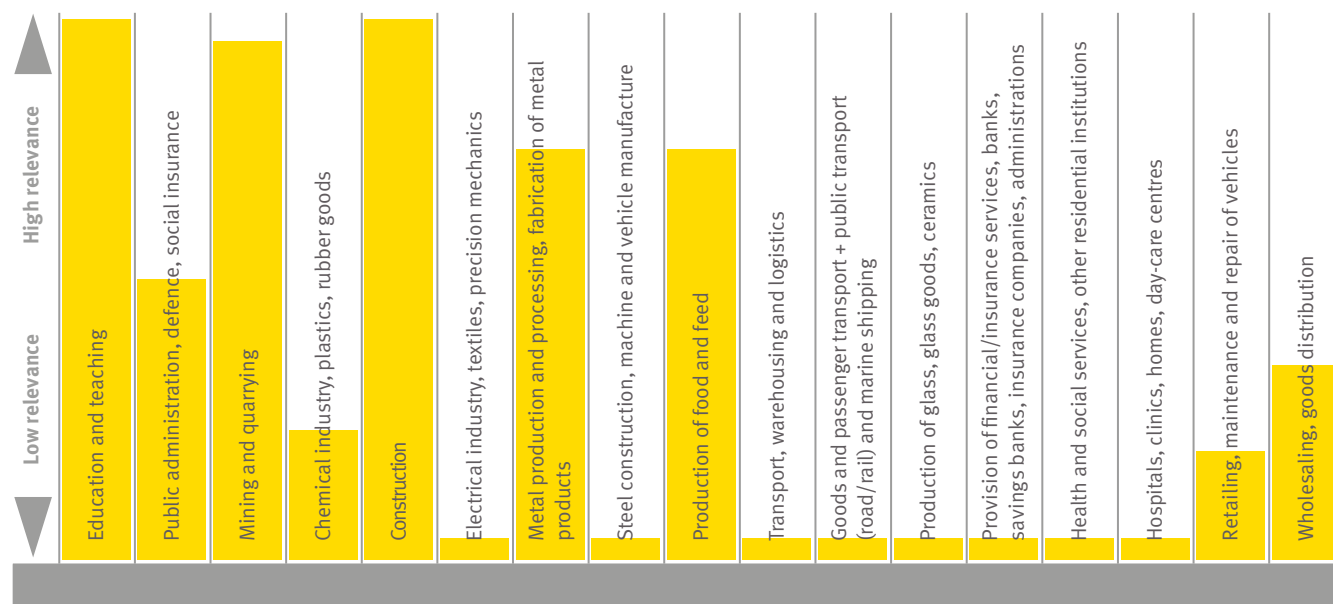
## Noise-induced hearing loss among older employees.



25 per cent of working people aged 50 to 65 already suffer from hearing loss. (buero-forum: YourOffice Letter 2013-07)

## Noise pollution

Relevance of the trend in different sectors



on construction sites, as noise is a prominent factor in mining, the metal industry, food production and the beverages industry as well.

There is now a stronger focus on the fact that even lower noise levels at the workplace are perceived as annoying and disturbing – and can impair health. Conversations, phone calls and background music can cause stress. This extra-aural noise exposure has an effect on the entire organism. Body functions are usually affected from a noise level of 60 dB(A). At the workplace an elevated noise level manifests itself with poor employee concentration and reduced performance.

Inappropriate responses and even accident hazards can result from this. In addition, important information such as acoustic warnings can be masked by background noise. This also applies to road traffic: pedestrians or cyclists who cut themselves off from hazards in their surroundings by listening to loud music on headsets expose themselves to serious accident risks. Exposure to noise at the workplace increases when it is supplemented with potentially harmful factors such as night and shift work, deadline pressure or excessively demanding tasks. These factors, all of which will figure strongly in the world of work in the future, potentiate the effect of noise. Experts refer in this context to combined exposure. The combination of noise and forced posture, one-sided posture, vibration and the handling of hazardous substances can affect the blood circulation

in the inner ear. In a working environment in which mental stressing due to work intensification or job security fears are increasing, there can be an accumulation of such combined effects with their consequences for health such as adrenaline and cortisol output, higher blood pressure, digestive and sleep disorders, tense muscles and diminished immune response.

The link between noise pollution and mental illness has now been proven. People heavily exposed to noise are twice as likely to suffer from depression and anxiety disorders than the population average.

In schools and pre-schools, noise is also one of the frequently reported stresses. In a survey, pre-school employees rated noise levels at their workplaces as fairly to very stressful. And justifiably, as noise levels of 80 to 85 decibels are common in pre-schools and make the performance of administrative or communication tasks such as documentation or phone calls a challenge. The high noise level necessitates the constant raising of the voice, which can result in damage to the vocal chords. Older skilled employees aged 40 plus regard large groups in pre-schools as more stressful than their younger colleagues.

In regular schools, too, noise is one of the main sources of stress, particularly due to changes in the forms of teaching: group and partner tasks and informal learning cause about 5 dB higher noise

levels, which are all too rarely mitigated by properly designed room acoustics and remedial acoustic measures. Large classes and pre-school groups with impulsive, hyperactive children make the problem worse. The ability to tolerate noise declines considerably with advancing age. Pre-school staff with many years or decades of professional experience are particularly badly affected.



50%



**Noise-induced hearing loss is irreversible.** 50 per cent of Germans are unaware that hearing loss is incurable.

## At a glance

- Two forms of noise are effective at the workplace: firstly, aural, “loud” noise such as from machines or explosions. And, secondly, extra-aural, quieter sounds that can be annoying, such as disruptive conversations or constant background music.
- 25 per cent of older working people already have hearing loss.
- The consumption of loud music, particularly via the headsets of mobile devices, additionally stresses the sense of hearing, particularly among adolescents.
- People on construction sites and in quarries, in the metal industry, restaurants, pre-schools and schools are particularly affected by noise.
- Exposure to noise can affect the entire organism – both physical processes and the mental state. Body functions are usually affected from a noise level of 60 dB(A).
- Noise triggers symptoms of an organism on the alert. At the workplace, an elevated noise level can disturb the concentration and reduce productivity. This can give rise to inappropriate responses and also accident hazards.
- Noise increases the risk of suffering from mental illness like depression.
- If noise coincides with other factors like deadline pressure, the stress factors reinforce each other. Such combined stresses will increase.



*The first step in prevention is always to eliminate the stress factor at its source. An important aid in this is low-noise processes – in our sector, special concrete pincers for quieter demolition work, demolition robots or the use of noise-reduced manual torches for heating bitumen membranes.*

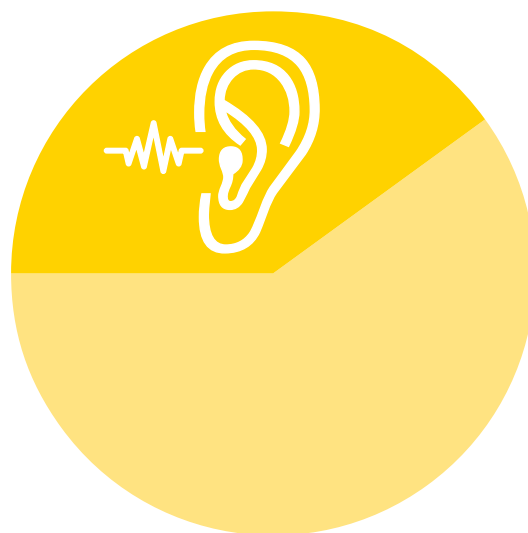
*The implementation of technical and organisational measures to reduce noise is not always easy in view of the location-dependent processes in the construction industry.*

*It is therefore essential to refine existing work systems without neglecting behaviour-based prevention.*

*Bernhard Arenz, Prevention Manager,  
German Social Accident Insurance Institution for the building trade*

**40%**

**Noise-induced hearing loss is the most frequently recognised occupational disease.** In 2014 there were 16,112 recognised cases of occupational disease in Germany, 6,425 of which were cases of noise-induced hearing loss (amounting to 40 per cent).





**Immobility spells ill health:  
A poor state of fitness due to lack of exercise increases  
both the personal health risks and the  
accident risk at and outside work.**



# Immobility spells ill health

Taking too little exercise means reduced vigour, agility and safety. This also applies when damage to the human organism has not yet made itself felt with discomfort. Exercise means any physical activity that increases energy consumption and mobilises the skeletal muscles. Sport goes a step further and describes physical performance, competition and the pleasure of exercise.

When it comes to sporting activity, there are differences according to gender, age and social stratum. While men are generally more physically active than women, both sexes practise less sport with increasing age. Members of the middle- and upper-income brackets and educated people are more active in terms of sport.

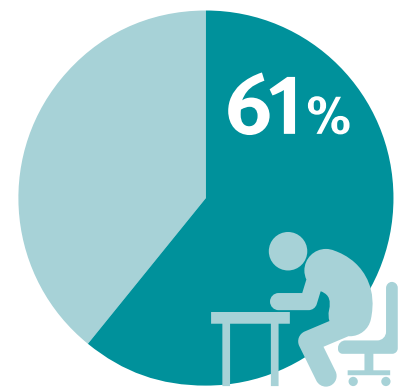
Because people are relieved of many strenuous tasks by machines, physical exercise has become scarce in many modern professions. This applies particularly to employees who spend a lot of their working day at monitors, e.g. in public administrations, at banks and insurance companies, hospitals and clinics. Because of the growing need to be mobile, more and

more time is spent behind the wheel and hence without exercise.

Just how much employees are stressed by immobility in a single posture, e.g. during prolonged sitting, depends among other things on their personal fitness. Many factors play their part here: the intensity, duration and frequency of stressing on the one hand, and the state of fitness of the back, joints and muscles on the other.

Constant sitting is manifested from an early age: the trip to school is travelled by car or with public transport, school lessons are spent seated – and the schedule continues with mealtimes and homework. The consumption of media then occupies the rest of the day: today, roughly one in three children watches television for more than two hours a day, and the use of information and communications technology (ICT) is increasing with a growing decline in physical activity. There is no place for exercise. Another reason for the lack of exercise is an intensification of curriculum content at school and during vocational training, as this allows little time for physical activities. It can also be

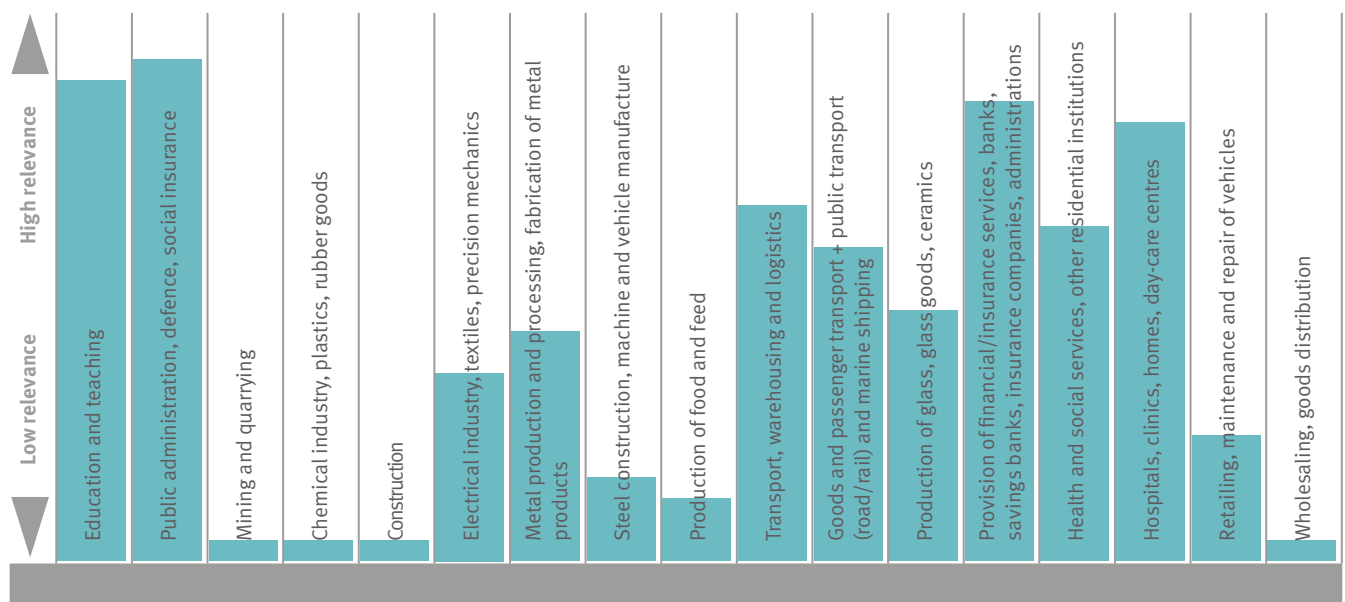
## Two in three adolescents show postural damage.



More and more children and adolescents show serious postural damage and thus run the risk of suffering later from chronic back disorders. 61 per cent of 8- to 18-year-olds have faulty postures. (Marianowicz Medizin Zentrum 2014)

## Lack of exercise outside work

Relevance of the trend in different sectors



significant if children and adolescents have less opportunity for responding to their urge to exercise due to increasing road traffic and the lack of outdoor space. Physical coordination, the sense of balance and muscle tone suffer as a result. It is a fact that children with poor coordination are more likely to trip and injure themselves. It is suspected that the number of school accidents attributable

to lack of exercise and overweight is on the increase. This is borne out by the fact that physical performance among children and adolescents at school sports days has recently deteriorated sharply. Many of those embarking on their working lives are not in a good physical shape: 15 per cent of young people under 17 are overweight, and 6 per cent suffer from obesity. In Germany, one in ten children

has high blood pressure, which can cause cardiovascular illness. Postural damage or weakness also arises in early childhood. Many children starting school are already affected and complain of backache. The lack of exercise is also a cause of bad moods. Over 30 per cent of young people of school age between 11 and 18 complain of states of depression, and the share increases steadily with increasing age.



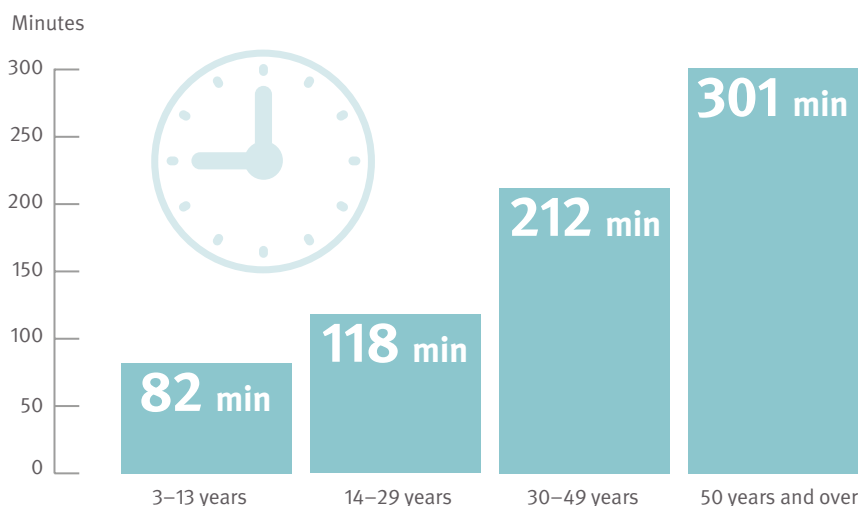
*Physical fitness, strength, mobility and stamina are decisively important for work in the fire service.*

*The health diagnostics for checking the health status of fire service staff therefore has to be regularly, professionally and conscientiously performed. This is because many firemen overestimate their abilities.*

*Christian Heinz, Prevention Manager,  
German Social Accident Insurance Institution for the fire services in the Hanseatic regions of Hamburg, Mecklenburg-West Pomerania and Schleswig-Holstein*

In working life, the lack of exercise continues – with consequences for health. About a quarter of days lost to sickness in Germany are attributable to musculo-skeletal diseases. In addition, the probability of contracting osteoporosis increases as a result of physical inactivity, and inactive people are more likely to have age-related falls and accidents. Excessively long working hours amounting to over 50 per week and work-related stress can encourage cardiovascular disease, particularly if there is a lack of physical recreation outside work. A fundamental problem of long working hours is that they significantly limit leisure behaviour. Even more flexible working hours, e.g. with flexitime, do little to mitigate the negative social and health effects of long working hours.

Insured employees in the public services, banks and insurance companies are plagued by musculoskeletal complaints. Again, the reason is increasingly immobile tasks performed seated, coupled with longer working hours that allow little scope for exercise after work.



**Television is an exercise killer.** Adolescents and young adults spend up to two hours per day watching television. Older people watch about 300 minutes of television per day on average.

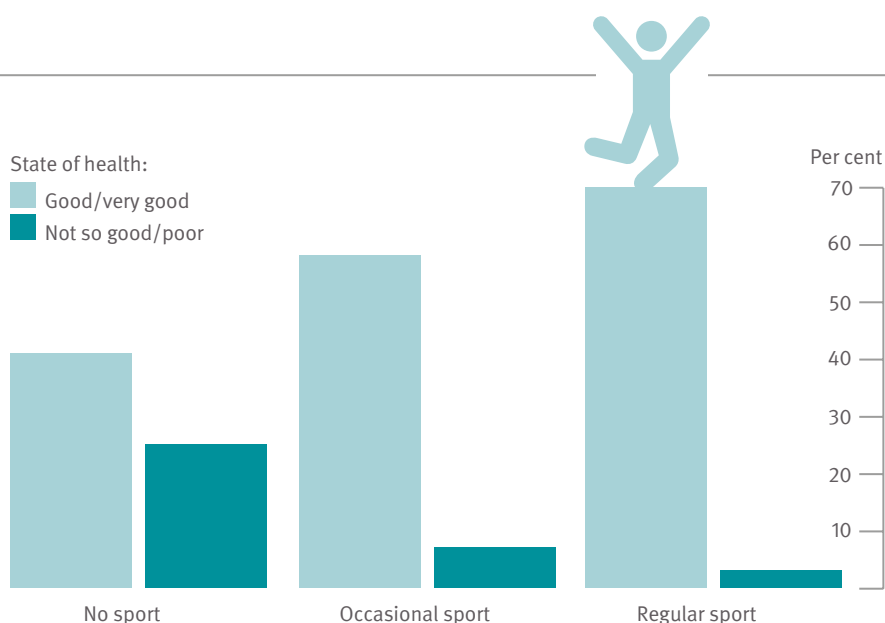
## At a glance

- Lack of exercise starts in childhood and usually continues in working life.
- The number of overweight or obese children and adolescents is increasing. They have poor bodily coordination skills.
- The growing use of information and communications technologies is often accompanied by long periods of sitting, at work and at home.
- If the persons affected do not compensate for this lack of exercise in their free time, this has a negative effect on their health. The cardiovascular system weakens and there is a growing risk of type-2 diabetes, among other things.
- In combination with an unhealthy lifestyle in which there is a lack of breaks and poor nutrition is the rule, the consequences for health deteriorate further.
- Long working hours allow little time for regular sport outside work.
- The World Health Organisation estimates that almost a third of adults worldwide are physically inactive. They engage in moderate physical activities for less than 2.5 hours per week.
- The share of active sports practitioners falls with increasing age.
- Excessively long working hours (more than 50 per week) and work-related stress combined with lack of exercise boost the risk of cardiovascular disease.
- A lack of physical activity is considered the fourth most frequent risk factor for mortality.
- Declining physical fitness is accompanied by increasing safety and health risks for firemen in action.

44 per cent of employees in the financial and insurance sector complain of unbalanced physical activity. Over a third of employees in the public services reported suffering from back, neck and shoulder pain three times or more per week.

The lack of exercise also has a detrimental effect on firemen who have to be equal to high physical stressing during their assignments. Some no longer satisfy the requirements for wearing breathing apparatus. More than 40 per cent of firemen exhibit three or more risk factors

for heart disease such as elevated blood pressure, blood lipid and cholesterol values. During assignments with breathing apparatus, in protective clothing and on exposure to heat, the persons affected are no longer up to the extreme stressing of the cardiovascular and musculoskeletal systems – the safety and health risks in action are increasing.



**Even a little sport improves the state of health considerably.** Sporting activity and health are related: While 25 per cent of couch potatoes have health issues, it is only 7 per cent of those who occasionally practise sport.



**The workforce marches on its stomach:  
Challenging work meets unhealthy nutrition – with  
consequences for safety, health and fitness.**

# The workforce marches on its stomach

Unhealthy, excessively greasy food increases the body fat mass and promotes the development of overweight. Obese (corpulent) people have a lower life expectancy than those with normal weight. Overweight encourages the onset of many diseases. The health risks increase markedly when this is compounded by lack of exercise, which is often the case.

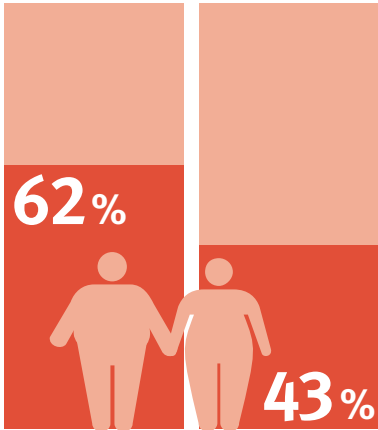
The life-threatening consequences of unhealthy eating habits in the long term are cardiovascular diseases such as high blood pressure, arteriosclerosis, heart attack and stroke. It is estimated that a third of fatalities caused by cardiovascular diseases are related to nutritional behaviour.

Eating habits are also potentially the cause of diseases of various organs and cancer. About 30 to 40 per cent of instances of cancer can be prevented by a healthy and balanced diet combined with physical exercise and the avoidance of overweight. Although nutrition is a person-

al matter, it has a huge impact on working life, because serious overweight can impair the capacity to work. Overweight is accompanied by poorer physical fitness – productivity and the ability to deal with pressure decline and more and more time is spent off work. The risk of accompanying disease and complications after occupational accidents increases and rehabilitation is more laborious and costly. The social accident insurance therefore regards nutrition and exercise as important prevention subjects, even if it is the personal behaviour patterns of the insured that are mainly concerned.

Unhealthy eating habits are a phenomenon that can be encountered in numerous professional groups and particularly in those where workers spend a lot of time sitting and little time is allocated for meals, e.g. in freight and passenger transport and in public administrations. Especially older employees there tend to have a high body mass index. Overweight becomes problematical especially when the

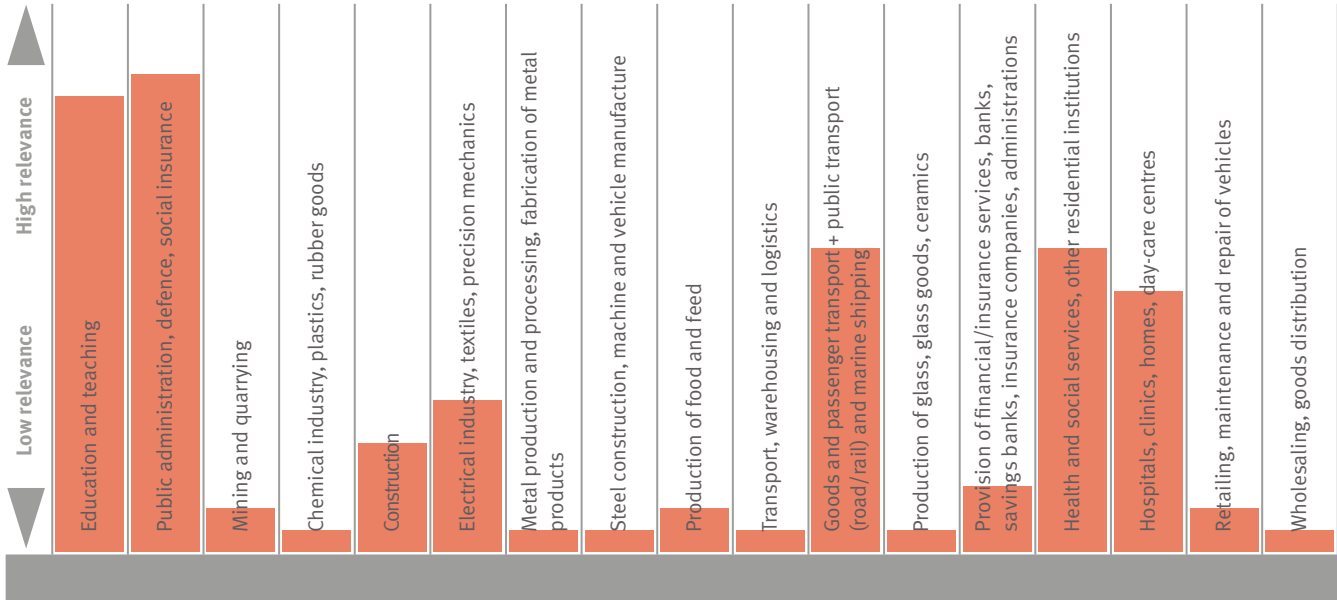
## More and more people are overweight.



In 2013, a total of 62 per cent of men and 43 per cent of women in Germany were overweight. These figures are on the increase. (Federal Statistical Office)

## Unhealthy nutrition

Relevance of the trend in different sectors



job demands a certain degree of fitness, e.g. the fire brigade. The glamorous image of the “knight in shining armour” is inapplicable to the actual state of German firemen: over 40 per cent live with three or more health risk factors. And it is in most cases unhealthy nutrition – usually accompanied by lack of exercise – that affects the state of health and fitness.

The large proportion of in most cases overweight men with low staying power is not compatible with the often extreme demands of the job. Under extreme physical strain, such as when wearing breathing apparatus in action, there are risks to safety and health. This also increases the risk of error and accidents. According to studies in the USA where trends are similar, over 70 per cent of firemen are overweight. The resultant cardiological problems are the main cause of fatalities on firefighting assignments.

Unhealthy nutrition is usually accompanied by a raft of issues – first and foremost, work-related stress due to long working hours and tough demands. For example, the number of rescue assignments is increasing while support from volunteer firemen is dwindling. And everyday life shows that, despite numerous aids, members of rescue services often have to lift and carry heavy loads. Unhealthy nutrition and overweight can additionally burden the musculoskeletal system. In addition, as a consequence of appalling experiences during assignments, the family members of firemen and emergency services have a significantly higher risk of

acute stress reactions and post-traumatic stress disorders, which can in turn affect eating habits.

Another risk factor is shift work. As a result of this, particularly older employees in clinics, hospitals, nursing homes and emergency services complain increasingly of sleep disorders. Too little sleep weakens the immune system and tends to encourage less healthy eating habits. Irregular work assignments make it difficult to participate in family life and shared meals.

Long working hours and rushing around take their toll: those affected tend to resort to oven-ready meals, fast food and sweets. If the diet lacks a combination of polyunsaturated fats, minerals and vitamins or consists of too many saturated fats, sugar and modified foods, this can affect physical fitness and mental health. Noteworthy in this connection are depressive disorders and Alzheimer's.

An unhealthy diet has a lot to do with acquired behaviour. It does not first start at adult age or even when starting work. By the age of 17, almost one in seven adolescents is already overweight. This is aggravated by lack of exercise: anyone who has 10 years of schooling behind them has already sat through 9,000 hours of lessons. In their free time, adolescents are becoming increasingly immobile. By the age of 18, many young people then spend an average of over nine hours daily at a computer workstation. Hypertension is a widespread clinical picture even

among young adults and affects up to 60 per cent of men and women in later years.

These are not good prerequisites for a healthy and safe working life – be it behind a desk or in an emergency vehicle. Education and sensitisation early on are therefore important. And preventive health care for the youngest should start early, e.g. with healthy foods available in pre-schools and schools.

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**Overweight on rescue assignments.** A trend that also applies to Germany: in the USA, over 70 per cent of firemen are already overweight. The resultant heart problems are the main reason for fatalities on assignments.





*Advising firms on healthy nutrition is a primary task of the health insurance schemes, but the subject is also relevant for accident insurance institutions.*

*Nutrition is therefore an aspect of health management systems and is closely related with the encouragement of exercise in pre-schools, schools and at work.*

*The accident insurance institutions advise their members on both issues.*

*Dr Torsten Kunz, Prevention Manager,  
German Social Accident Insurance Institution for the public sector in Hesse*

**At a glance**

- Overweight, usually accompanied by lack of exercise, is a disease of modern civilisation. More and more people, including the young, are affected.
- The effect of poor nutrition on personal well-being and on physical and mental health must not be underestimated.
- Overweight is accompanied by poor physical fitness: productivity and the ability to deal with pressure decline, with an increase in days of sick leave.
- Occupational accidents of overweight people are more often associated with accompanying and secondary disease and rehabilitation is more laborious.
- The coincidence of unhealthy nutrition and job-related stress, shift work and other harmful factors results in a preference for fast food.
- Jobs that demand a good state of fitness are barred to the overweight. In the public services sector, this applies particularly to the fire and emergency services



**30%**

**High blood pressure in young adults.**

The share of young adults with arterial hypertension is as high as 30 per cent, and among the 35- to 65-year-olds, it is 50 per cent (women) and 60 per cent (men).

# The remit and methodology of the Risk Observatory

The world of work is changing rapidly – and with it the methods for preventing accidents and health hazards at work. The Risk Observatory at the Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA) is a modern prevention tool in a process of change driven by digitisation, demographic shifts and globalisation.

But how do we know which measures are necessary and effective for protecting people at work? The knowledge arises in the two-way communication between the social accident insurance and its members, i.e. commercial enterprises and public-sector institutions in Germany. In their role as employer, they are responsible for the safety and health of their employees.

The social accident insurance institutions employ specially trained prevention specialists who have expertise of a specific sector of industry or across sectors. These labour inspectors are acutely aware of the effects of new technologies and strategies in the working environment when advising and monitoring member companies and exchanging information with those in charge at company level.

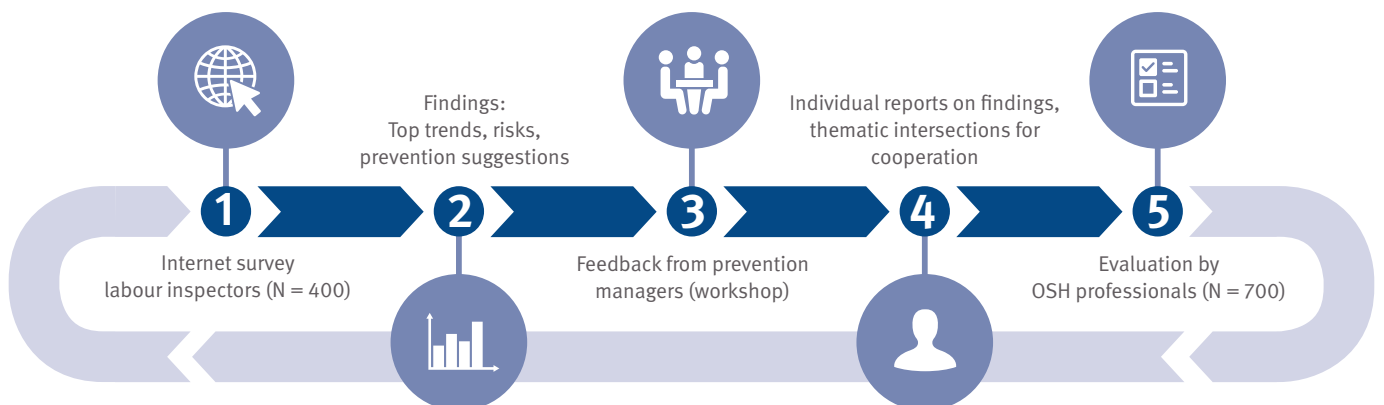
Many labour inspectors also hold seminars in which they enter into detailed talks with players in industry. And they report their experience to the specialist bodies of national and international OSH. These “future scouts” therefore have their ears to the ground and have sound

knowledge of current trends in the world of work. The IFA on behalf of the social accident insurance institutions has been systematically gathering this knowledge through the Risk Observatory launched in 2012.

The starting point was a comprehensive literature search at the IFA, in which almost 100 specific developments in the world of work and education were identified. These also included changes mainly affecting road safety. In their choice, the German Road Safety Council provided assistance. The research team assigned these developments to eight global trends. One global trend, for example, is the “use of new technologies”, for which many different developments describe the changes it can specifically yield at the workplace. In this instance, the consequences extend from digitisation to nanotechnology.

The Risk Observatory is not only interested in the importance of these developments, but also describes their possible impacts on working people. Since 2012, the IFA has surveyed almost 400 labour inspectors of the accident insurance in-

**DGUV Risk Observatory.** Research and analysis supplemented with surveys of labour inspectors and OSH professionals in occupational safety and health.





*The Risk Observatory tells  
the social accident insurance institutions  
where prevention is necessary today  
to combat risks  
and counter problems of tomorrow.*

stitutions. The method used was an on-line questionnaire in which respondents were to identify focuses for the next five years, in terms of

- the relevance of developments for safety and health at work,
- the risks associated with important developments, and
- the necessary preventive measures for combating these risks.

On the basis of the evaluation of these findings and supplementary literature searches by the observatory team, reports were issued that were again discussed at workshops with the accident insurance institutions concerned. The purpose of this downstream step was to verify the findings and points of departure for practical prevention work. Finally, each insurance institution received its own information on the trends, risks and prevention ideas that will require special attention in its branches of industry in the coming years.

From the assessments of the labour inspectors, the IFA identified ten future trends that are considered particularly

important across all accident insurance institutions and their sectors. These are described in greater detail in this brochure.

To ensure that the findings of the Risk Observatory do indeed reflect OSH needs in the field, an on-site evaluation was finally carried out. To this end, another group of OSH experts were asked for their opinions: via the online platform [www.sifa-community.de](http://www.sifa-community.de), 700 OSH professionals (Sifa) took part in another IFA survey. These individuals are specially trained to advise and support companies in the fields of occupational safety, health protection and the humane organisation of work. The outcome of this survey revealed that the reality on the ground is realistically represented by the labour inspectors' assessment.

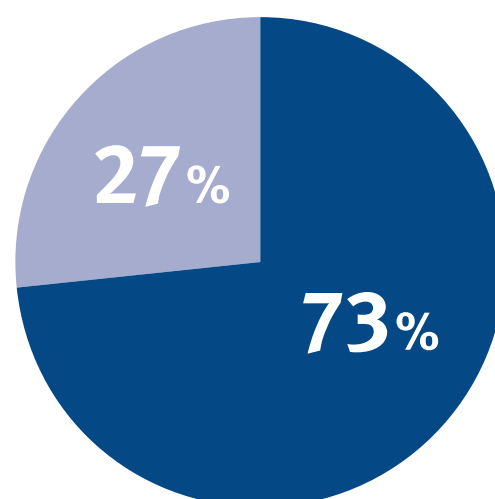
What makes the Risk Observatory of the German Social Accident Insurance (DGUV) special is that it looks not only into the future of the world of work, but also at the requirements specific to each sector of industry. At the same time, the findings of the Risk Observatory make it

plain where developments are affecting more than one sector. In those areas, accident insurance institutions can invest jointly in prevention.

This means that the German Social Accident Insurance and its Institute for Occupational Safety and Health have a modern tool for proactive prevention. The Risk Observatory is continuing its work. The next round of surveying will get underway at the beginning of 2017.

**Three out of four surveyed OSH professionals confirmed labour inspectors' observations.** In their view, the situation in enterprises and the public sector is realistically represented by the assessments of labour inspectors of the accident insurance institutions.

- Agreement between the risk assessments of labour inspectors and the OSH professionals
- Very little difference between the risk assessments of labour inspectors and the OSH professionals



# German social accident insurance: everything from a single source

**No one is to be allowed to suffer damage to his or her health due to his or her work – this is the core idea behind social accident insurance in Germany. 79 million people are under the special protection of the social accident insurance scheme at work, when minding children, in schools and at universities.**

Social accident insurance is responsible for benefits as a result of occupational accidents and diseases. The social accident insurance institutions work together in preventing occupational accidents, occupational diseases and work-related health hazards – among other things with joint research.

Social accident insurance is an autonomous part of the social insurance system in Germany. The idea was “invented” by Otto von Bismarck in 1885. On the basis of the German Social Code, social accident insurance today protects some 79 million people from the consequences of accidents at work and on the way to and from work, as well as from occupational disease. These include about 17.1 million children in day care centres, school pupils and students.

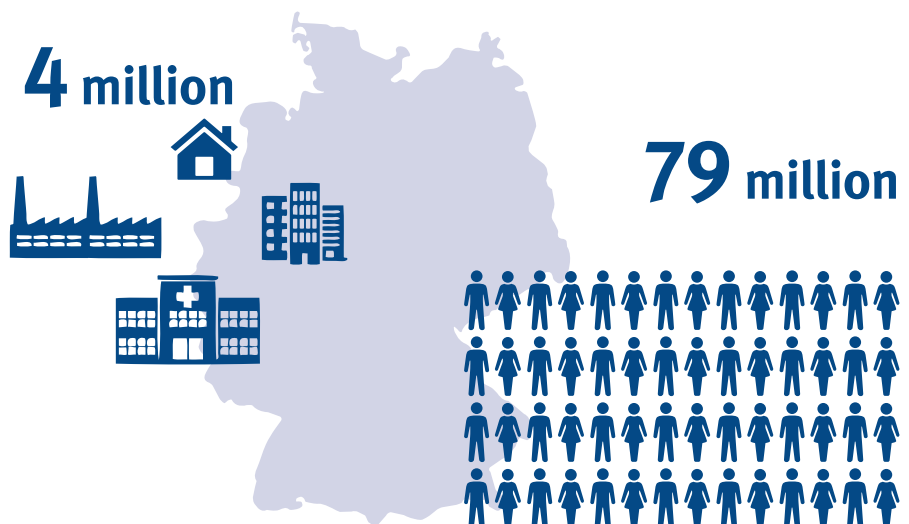
Insurance coverage is provided by the private- or public-sector employer. Every commercial enterprise that has responsibility for employees is a member of a social accident insurance institution.

Administrations, schools and pre-schools in public ownership are organised as members of the equivalent institutions for the public sector.

The members of the social accident insurance institutions benefit from the principle of commutation: the social accident insurance system accepts the liability of employers for occupational accidents and diseases of employees. This way, employees are assured of extensive rehabilitation or compensation benefits. In addition, the social accident insurance system acts preventively. It not only goes into action in the event of a claim, but also helps to prevent occupational accidents and diseases from arising in the first place.

The umbrella organisation, the German Social Accident Insurance (DGUV), represents the collective interests of the social accident insurance institutions and exploits synergies – for instance, for research into safety and health at work. DGUV maintains three research

**Social insurance coverage.**  
In 2015, the social accident insurance scheme insured 79 million people in more than four million commercial enterprises and public-sector institutions.



institutes which specialise in the complex causal relationships of factors in the workplace and develop methods for preventing health risks. The tasks and working fields of these institutes cover virtually the entire spectrum of the research needs of the accident insurance institutions.

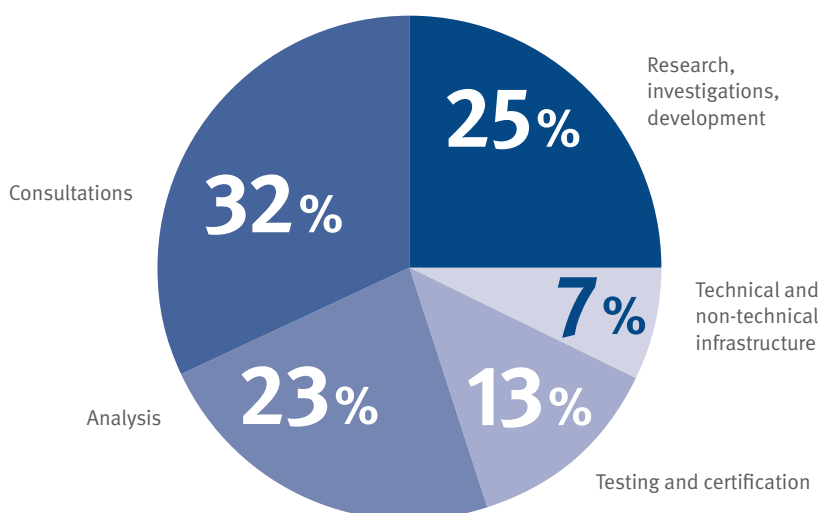
DGUV's Institute for Occupational Safety and Health (IFA) has a scientific and technical outlook. It conducts research, provides advice and carries out tests on behalf of the accident insurance institutions in the fields of chemical, biological and physical effects as well as in accident prevention, product safety and ergonomics. As a testing and certification body for personal protective equipment and machines, the IFA also acts on behalf of manufacturers and companies.

In connection with its international project work, IFA has been involved in setting up the monitoring body for risks at the European Agency for Safety and Health at Work since 2006. This is how

the idea for setting up DGUV's own Risk Observatory came about, for whose planning and operation the institute has been responsible since 2012.

### Tasks of the Institute for Occupational Safety and Health of the German Social Accident Insurance:

IFA supports social accident insurance institutions on scientific issues concerning occupational safety and health.



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# German Social Accident Insurance Institutions

## German Social Accident Insurance Institution for trade and industry

German Social Accident Insurance Institution for the raw materials and chemical industry  
www.bgrci.de

German Social Accident Insurance Institution for the woodworking and metalworking industries  
www.bghm.de

German Social Accident Insurance Institution for the energy, textile, electrical and media products sectors  
www.bgetem.de

German Social Accident Insurance Institution for the foodstuffs and catering industry  
www.bgn.de

German Social Accident Insurance Institution for the building trade  
www.bgbau.de

German Social Accident Insurance Institution for the trade and logistics industry  
www.bghw.de

German Social Accident Insurance Institution for the administrative sector  
www.vbg.de

German Social Accident Insurance Institution for the transport industry, postal logistics and telecommunications  
www.bg-verkehr.de

German Social Accident Insurance Institution for the health and welfare services  
www.bgw-online.de

## German Social Accident Insurance Institutions for the public sector, Federal level

German Social Accident Insurance Institution of the Federal Government and for the railway services  
www.uv-bund-bahn.de

## German Social Accident Insurance Institutions for the public sector, Länder level

German Social Accident Insurance Institution for the public sector in Baden-Württemberg  
www.ukbw.de

German Social Accident Insurance Institution for local authorities in Bavaria/German Social Accident Insurance Institution for the public sector in Bavaria  
www.kuvb.de

German Social Accident Insurance Institution for the public sector in Berlin  
www.unfallkasse-berlin.de

German Social Accident Insurance Institution for the public sector in Brandenburg/German Social Accident Insurance Institution for the fire services in Brandenburg  
www.ukbb.de

German Social Accident Insurance Institution for local authorities in the Braunschweig region  
www.bs-guv.de

German Social Accident Insurance Institution for local authorities in the Hannover region  
www.guvh.de

German Social Accident Insurance Institution for the fire services in the Hanseatic regions of Hamburg, Mecklenburg-West Pomerania and Schleswig-Holstein  
www.hfuk-nord.de

German Social Accident Insurance Institution for the public sector in the Free Hanseatic City of Bremen  
www.unfallkasse.bremen.de

German Social Accident Insurance Institution for the public sector in Hesse  
www.unfallkasse-hessen.de

German Social Accident Insurance Institution for the public sector in Mecklenburg-West Pomerania  
www.uk-mv.de

German Social Accident Insurance Institution for the fire services in Saxony-Anhalt and Thuringia  
www.fuk-mitte.de

German Social Accident Insurance Institution for the fire services in Lower Saxony, www.fuk.de

German Social Accident Insurance Institution for the public sector in Lower Saxony, www.lukn.de

German Social Accident Insurance Institution for the public sector in Schleswig-Holstein and Hamburg  
www.uk-nord.de

German Social Accident Insurance Institution for the public sector in North Rhine-Westphalia  
www.unfallkasse-nrw.de

German Social Accident Insurance Institution for local authorities in the Oldenburg region,  
www.guv-oldenburg.de

German Social Accident Insurance Institution for the public sector in Rhineland-Palatinate, www.ukrlp.de

German Social Accident Insurance Institution for the public sector in the Saarland, www.uks.de

German Social Accident Insurance Institution for the public sector in Saxony, www.unfallkassesachsen.de

German Social Accident Insurance Institution for the public sector in Saxony-Anhalt, www.ukst.de

German Social Accident Insurance Institution for the public sector in Thuringia  
www.ukt.de

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