

## Comments on the Green Paper “Work 4.0“ by the German Social Accident Insurance

The Green Paper “Work 4.0“ casts a glance at the working world of tomorrow and poses key questions that, hopefully, will assist with the future drafting of regulations and tools of social and labour market policy. Thanks to its role in the social insurance system, the Social Accident Insurance scheme is already concerned today with numerous factors touched upon by these key questions.

On the basis of the Social Security Code (SGB VII), Social Accident Insurance in Germany protects over 76 million people from the consequences of accidents at work and occupational diseases: employees in over 3.9 million companies and institutions, children in day care centres, school pupils, students and volunteers. Prevention, rehabilitation and compensation are the central tasks performed by the Social Accident Insurance institutions.

With its threefold tasks – those of prevention, rehabilitation and compensation – Social Accident Insurance has an immediate obligation towards the population regarding their lives, health, inclusion and social security. With all suitable means, it therefore intends, now and in the future,

- to prevent accidents at work and at school and on the way to and from work and school, occupational diseases and work-related health hazards;
- to enable people through humane and health-promoting measures to contribute to economic and social value creation, independently of their personal capabilities; and
- to enhance quality and productivity through safety and health at work.

At the beginning of the 21st century, on the threshold to Work 4.0, the Social Accident Insurance institutions are faced with new challenges. These include above all:

- technological progress that finds expression in social and economic processes becoming increasingly digital, flexible and interlinked,
- demographic change and the consequences for prevention work, and

- social change with the demand for greater transparency, co-determination and participation (inclusion).

### Digital transformation

Digital transformation owing to technical progress is subjecting society and the risks to which it is exposed to increasing and dynamic change. In many instances, the standard of technical safety in industry is being much improved. However, technical innovation and ever shorter product life cycles can also have unintended and unforeseeable consequences.

For example, innovative production technologies and working methods may give rise to new accident risks and health hazards. Examples of this are the large number of new methods and fields of application for familiar and new, so far insufficiently investigated hazardous substances where the risks arise above all due to exposures to complex mixtures in the low-dosage range. Hazardous substance exposure from the use of 3D printers should be mentioned in this context. Other examples are the safety risks due to collaborative robots, physical and mental stress due to data overload or mobile working as well as the problems of data security in digitised and interlinked work systems. This is where accident insurance has to take action so that work systems and human-system interfaces are humanised and made healthy and safe (and secure in the context of data transmission). Methods are called for that can keep pace with the high speed of innovation by enabling safety and health risks to be assessed as early as possible.

A possible shift away from manual activities that stress the body in several ways towards mainly one-sided physical and mental stressing or combined stresses can also result in a shift in health issues. At the same time, many job profiles are becoming more complex, and this can give rise to new challenges for research by and support from the occupational health sector. It will also be important to monitor whether this also results in new occupational diseases.

Future prevention research must holistically address the work systems transformed by digitisation (man, organisation and

technology) in order to research the effects on health, develop solutions and arrive at rules for humane design. Development in the technical field and research in the occupational health and ergonomics sectors are equally called for.

A further challenge for the Social Accident Insurance Institutions lies in the fact that the digital working world does not stop at national borders but is global and open. Government and the social insurance system have to jointly find ways of upholding the high German standards of safety and health at work in this context as well.

### **Continuing education and training**

At the same time, the onus is on the Social Accident Insurance scheme in its capacity as the biggest non-governmental training provider. New and adapted training content and methods are necessary to meet the rapidly changing requirements of technological and particularly digital change as well as of the changing forms of work and employment relationships that demand greater flexibility of employees. Informal learning, mobile learning, work-integrated learning and age-adaptive learning are examples that indicate future training tasks of Social Accident Insurance – tasks that have to be performed in close coordination and cooperation with other training providers and that must take effect long before the employee enters the working environment.

As a result of change in the structure of employee skills and an increasing polarisation of employment (elimination of jobs in the middle wage segment), there are also new demands in terms of the quantity, form of presentation and content of information – including, as well and in particular, information on occupational safety and health. This is where one of the challenges to training in the future can be found.

### **Demographic change**

Training has an important part to play in the light of demographic change: life-long learning must not remain simply a demand, but must become reality if people of all ages are to deal successfully with the stream of new challenges in our technically dominated working world or manage a change of profession if it becomes necessary as a result of health issues.

Digital innovation also offers opportunities for the spread of knowledge. However, it can and must help to adapt work, in keeping with the principles of industrial safety, to the needs of older workers and the ageing process, as demanded by the revised version of the Industrial Safety Ordinance (Betriebs-sicherheitsverordnung). And it can help to keep older people healthy for longer at work, e.g. through the development of technical systems or medical innovation that compensates for age-related shortcomings (e.g. declining physical strength or sensory skills)

or that help to identify health hazards and incipient disease early on so that suitable prevention measures can be taken in good time. Much the same applies to particularly sensitive groups of persons or to persons with pre-existing health issues. Here, again, new technologies and modern, increasingly effective prevention measures open up ways of integrating such people better into the working environment.

This applies especially to the inclusion of people with disabilities under the terms of the UN Disability Rights Convention: new technologies open up opportunities for the increasingly accessible design of the working environment. Standards and product tests can help here. The Social Accident Insurance scheme has always been active in both areas with its institutes and test bodies. In the long term, accessibility can only be comprehensively implemented when its basic principles are applied in the design of the place of employment, equipment and working methods.

In an ageing workforce, chronic diseases will occur more frequently. The Social Accident Insurance scheme will have to distinguish between diseases caused essentially by the conditions at the workplace and those attributable solely to an ageing workforce – this may hamper the investigation and assessment of occupational diseases.

By definition, demographic change also refers to the growing proportion of women and the growing number of people with migrant backgrounds in the world of work. As a result of this diversity, even greater account of the associated needs must be taken in the rules and regulations and in the practical organisation of safety and health (e.g. adjustment of ergonomic reference values, offers for employees with different cultural, social and linguistic backgrounds). In this context as well, innovative technical and virtual systems are creating opportunities, e.g. for building language bridges

### **Models of work, the social market economy and the values of society**

The Social Accident Insurance Institutions see themselves increasingly confronted with new models of work closely linked to digital change and stimulated by the competition-intensifying globalisation of the labour market. In view of the periodic growth in the number of solo self-employed and so-called crowd- and clickworkers, it is essential to consider the general question of social security and accident insurance coverage. This may also entail re-examining the criteria under which a person qualifies for insurance coverage in the German social insurance system.

Occupational safety and health regulations, including the rules and regulations of the Social Accident Insurance Institutions defined by the social partners, are a permanent fixture of the social market economy and have demonstrated their value. They will remain indispensable to the social market economy in the

future. To this end, we will have to develop existing provisions and strategies further and adapt them to the changes. The increasing flexibility of work and forms of work calls for innovative strategies to uphold the safety and health of those affected and with which the organisation of occupational safety and health is possible even at non-standard workplaces where the boundaries between work and private life become blurred (e.g. in the car or in the living room at home). This means that the Social Accident Insurance Institutions have to define new requirements for safety and health in these contexts and, where necessary, help to modify the legal framework.

In the case of solo self-employment, as well as telework and mobile working, greater flexibility initially yields greater personal control over working hours. However, the positive effects are often offset by an intensification of work and/or the lack of demarcation between work and private life with the associated negative consequences for the safety and health of the self-employed/employees (physical and mental health risks, accidents, inability to work).

Novel flexible and largely self-determined forms of work at changing locations inevitably encourage employees to take more personal responsibility and develop their skills in ensuring healthy and safe work practices.

Occupational safety and health legislation alone will not therefore do justice to the change in value creation. In order to make such personal responsibility and skills possible, the Social Accident Insurance Institutions, their prevention services in particular, will make use of and develop new forms, media and channels of communication to effectively communicate its messages, sensitise people to safety and health topics and encourage safety- and health-promoting behaviour.

Alongside this, all (socio-)political forces must collectively initiate and promote a shift in cultural values in society: a culture that facilitates the conscious addressing of risks – be they at work or during leisure time. Risk communication plays an important role here. The subjects of safety and health have to be a prominent feature of all school and training curricula so that even the youngest grow up with an awareness of the central significance of the subject. Only with joint efforts can safety and health become an integral aspect of our mind-sets and actions. This can bring forth a comprehensive culture of prevention, and one that appears to be indispensable for the (working) world of the future.

Along with these prevention-related consequences of flexible, non-standard employment, there is also the issue of the identification and documentation of health hazards that occur intermittently, often with prolonged breaks in work-related exposure and which are more difficult to unambiguously assign to “insured“ and “uninsured“ activities. However, only when they are cor-

rectly assigned can the Social Accident Insurance Institutions distinguish the accidents and diseases which are covered by Social Accident Insurance.

### **Work culture, corporate culture**

Concerted action on the part of all social policy makers is called for in order to facilitate personalised planning of each phase of life with the aid of flexible, individualised working hours and locations. For employees with families and for older employees, special opportunities for flexible, individual solutions are available here, and the Social Accident Insurance Institutions can actively participate in their design.

Together we have to work towards reconciling society’s expectations of work on the one hand with the technologically feasible on the other. In this lies an important policy-making task in which the Social Accident Insurance Institutions can be a source of inspiration and ideas. Technical progress must not be seen as an automatic process. It must benefit humanity and it is indeed effected and guided by humans. So that all concerned can jointly determine what can be technologically expected of human beings, equal consideration must be given to the opportunities and risks of possible developments. In this connection, the early identification of trends and the scientific investigation of the possible consequences for safety and health at work are of special importance.

### **Areas for action and key questions from the point of view of the Social Accident Insurance Institutions**

For Social Accident Insurance, there are numerous questions relating to the benefits and risks to safety and health in the working environment of the future (Work 4.0). These questions go beyond the key questions and action areas outlined in the Green Paper or flesh them out:

1. To what extent can Work 4.0 help to create a world of work in which no one loses their life or is so seriously injured or becomes so ill that life-long damage is incurred (Vision Zero)?
2. To what extent can Work 4.0 additionally help to generally minimise occupational accidents, occupational diseases and work-related health risks?
  - For example, can increasingly flexible, self-learning and autonomous systems or robots handle health-damaging or dangerous tasks on behalf of humans?
  - Are there disadvantages or risks from activities no longer being performed, controlled and monitored by humans as a result of new technologies?
  - Does the employment polarisation accompanying the expansion of non-standard employment harbour the danger

of harmful mental or physical stress in the affected groups (understretching or overtaxing)?

- What do non-standardised, flexible working hours with intermittent exposure mean for the identification of occupational diseases?
3. Can a high level of safety and health at work also be ensured in a fast-changing working environment in which technology makes rapid progress possible and activities and forms of employment change?
    - How, for instance, can the growing number of human-system interfaces (IT, mechanical) be reliably adapted to human capabilities?
    - How is it possible to prevent the increasing autonomy and planning capabilities of systems from inappropriately dictating work organisation, e.g. the working rhythm?
    - How does risk assessment have to be adapted in the face of increasingly flexible, unstructured employment relationships (e.g. mobile work, solo employment, telework, crowdworking) and increasingly autonomous and dynamic work environments?
    - What is the best way to deal with new conditions at workplaces that give rise to constantly changing exposure situations and hence to risk constellations that are difficult to estimate (e.g. increasingly complex mixed exposure to hazardous substance in the low-dosage range)?
  4. The insurance of employees in the German Social Accident Insurance system is currently based on the classical conceptions of employment. What factors (e.g. existence of a contract of work, place where the work is performed, employer’s official seat) should decide who in Germany is entitled to social accident insurance coverage in the future?
  5. How do we effectively reach our target groups (companies, employees, trainees, school pupils ...) in tomorrow’s worlds of education, training and work? Do these target groups need special information forms/channels so that the occupational safety and health messages get through to them?
  6. How can Work 4.0 help us to cope with the challenge of demographic change in the working world?
    - Can, for example, technical systems and medical innovations help in the early identification of health hazards and diseases so that suitable prevention measures can be taken in good time?
    - Are older employees given technical means and opportunities for compensating for age-related shortcomings?
  7. How can findings from research into new risks associated with Work 4.0 be ploughed back as directly as possible into training?

8. How can the world of work be organised so that, in the face of rapid technological change, it encourages learning and supports life-long learning in all target groups?

9. In the light of globalisation, how can we ensure that the high standards of occupational safety and health existing in Germany can be extended to other countries as well?

This list makes no claim to be complete. However, it does contain key questions that will make a lasting mark on future social accident insurance work. In most cases, the Social Accident Insurance scheme with its prevention services, institutes, training centres, DGUV expert committees and other expert bodies has already started to search for answers. For instance, the Organisation of Occupational Safety and Health committee has issued an initiative paper to draw attention to the new requirements relating to the organisation of prevention for new forms of work and prepare concrete assistance for companies. Many current projects are derived from risk research and the findings of the risk observatory. The latter was established by the Social Accident Insurance Institutions at DGUV back in 2011. This is where, with the aid of a trend search, a risk observation centre looks ahead into the future of occupational safety and health. The goal is to meet new and future requirements of safety and health at work as early as possible with specific measures.

Prevention research plays a central role here. In terms of strategy, finance and manpower, it must be in a position to identify and assess new risks as early as possible. Biobanks and exposure databases can make a lasting contribution to the identification of new risks and hazards.

Suitable skills development is also an important tool for preparing people for the fast-changing future world of work and training with its expectation of greater personal responsibility.

In this connection, finally, we arrive at the issue of a long-term strategy for fostering an effective prevention culture in companies and institutions. Here, again, the Social Accident Insurance scheme has taken the lead with a campaign on the subject planned from 2017 onwards. Over and above this, prevention culture, work culture and corporate culture are central concepts for making Work 4.0 possible with a humane, safe and healthy profile.

Many of the listed questions can therefore be tackled by the Social Accident Insurance itself with its strong and experienced self-government composed of workers’ and employers’ representatives. Other questions, on the other hand, concern the system of social security as a whole and are possibly influenced by policy measures or new laws.

The Federal Ministry of Labour and Social Affairs has set an important process of dialogue in motion with its Green Paper

“Work 4.0“. It is now up to government to respond to the challenges outlined in the Green Paper in a way that makes it possible to retain a high level of social security. This will become a challenge particularly when the accustomed model of work, i.e. a firmly structured industrial culture with jobs, companies, social partners and wage sums that are comparatively easy to calculate and so forth, no longer exists. Even in the event of fundamental change, Social Accident Insurance coverage must not be a privilege that can be denied to a section of the workforce because of novel, obscure employment relationships.

In the interests of a mutually supportive society, it is important to ensure that no new openings for illegal employment develop that dump the burden of financing on the few remaining shoulders. For a fair calculation of contributions, measures may therefore have to be taken to record new payment flows like bitcoins or their successor systems, for example.

In view of the probable increase in cross-border mobility, DGUV should also bilaterally settle future issues of social insurance coverage and produce a coordinated procedure in the field of occupational safety and health in cooperation with globally active and national institutions and organisations. Any improvement in social security in nations with underdeveloped accident insurance schemes is desirable.

Changes in the world of work represent a major challenge for everyone. However, the Social Accident Insurance scheme has always addressed the changing conditions in the world of work. Since the representatives of employers and the insured in the self-government of the accident insurance system contribute their practical experience from their specific sectors of industry, the accident insurance scheme can respond consistently to new challenges and thus ensure the upholding of safety and health at work – for the benefit of everyone concerned. The Social Accident Insurance is thus a reliable institution in the German social insurance system that will continue to competently monitor and shape processes of change in the years to come.