

Healthy Work in an Ageing Europe

Strategies and Instruments for Prolonging Working Life

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European Network for
Workplace Health Promotion





ENWHP

Vision:

**Healthy Employees
in Healthy Organisations**

To make this vision become reality the European Network for Workplace Health Promotion ENWHP is committed to developing and supporting “good practice” for workplace health, which in turn contributes to a higher level of health protection and ensures sustainable social and economic growth in Europe.

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Introduction

The European Network for Workplace Health Promotion

“Healthy Employees in Healthy Organisations” is the vision of the European Network for Workplace Health Promotion (ENWHP) which has been supported by the European Commission from its beginning in 1996 as part of the European Programme for Action on Health Promotion, Information, Education and Training.

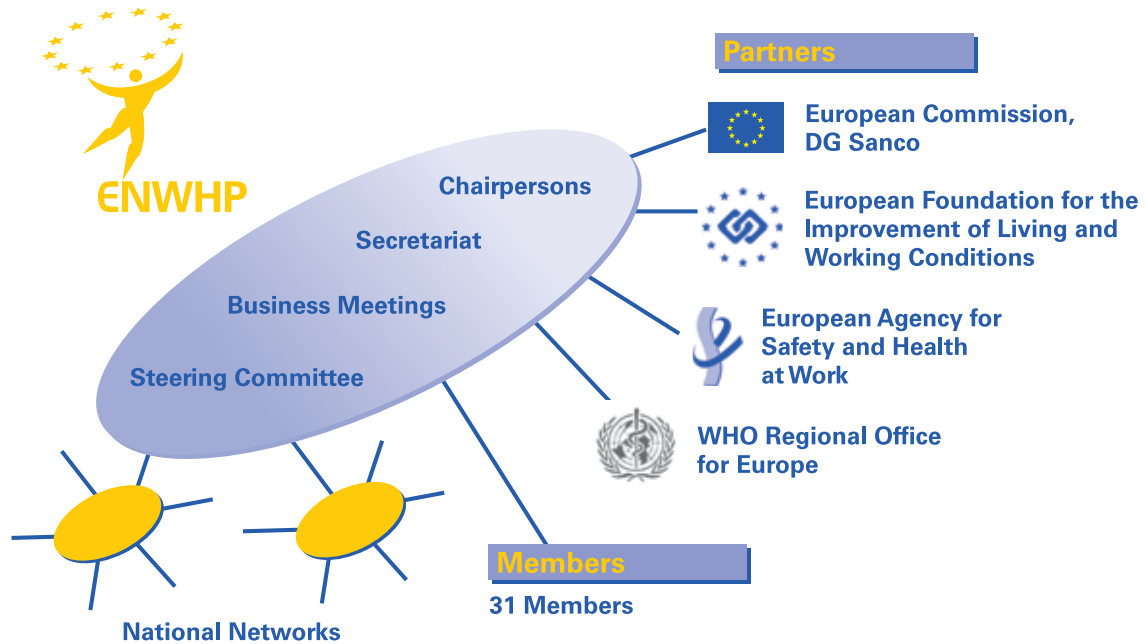
The ENWHP is an informal network of national occupational safety and health organisations and players in the field of public health in the EU member and accession countries, the countries of the European Economic Area and Switzerland. All 31 members were nominated by their national ministries or responsible ministerial authorities; they represent the Network at national level as National Contact Offices. ENWHP gathers and disseminates examples of successful workplace health practice and methods from all countries and economic sectors in an effort to increase the European knowledge on methods and examples worth copying and to respond to the new health challenges imposed on Europe by a changing world of work.

ENWHP was formally established in 1996. With the support of the European Commission, DG Health and Consumer Protection, ENWHP has carried out a number of important Europe-wide initiatives over the past decade which have established workplace health promotion (WHP) as a field of action for public health at European and national level. For the first time it has managed to develop a common European understanding of WHP which was defined in the “Luxembourg Declaration” (1997). This understanding is based on the European social model. It has an interdisciplinary nature and actively includes employees. As a result this understanding differs from

similar developments in other regions. In contrast to the USA, for example, where health management is primarily geared to risk factors and individual “lifestyle”, European intervention “ENWHP-style” is characterised by a high level of consensus and participation and has a more comprehensive function: it focuses on both individual health behaviour as well as on the healthy organisation of the working conditions.

On this basis the Network developed good practice criteria over the following years and documented exemplary models from various types a variety of organisations, i.e. successful individual projects for large companies, small and medium-sized enterprises and organisations in the public administration sector. In 2002, ENWHP began to develop national networks and forums for WHP in the Member States, together with a truly European inventory of useful methods and tools as well as a collection of arguments which justify investments in WHP. With the active participation of companies and other organisations the ENWHP uses these national infrastructures to facilitate the exchange of information and dissemination of exemplary workplace health practice on “ground level”, helping to create a lasting basis for the integration of WHP across all sectors, industries and sizes of company.

Another development responded to by the ENWHP at an early stage was the enlargement process. Membership in the Network has grown steadily over the past 10 years and the Network began to pay attention to the workplace health situation in the Eastern European countries even before they joined the European Union. Two Network projects are be-



How the ENWHP is structured

ing carried out in a joint initiative headed by the BKK Federal Association in Germany and the Nofer Institute in Poland. Both aim to identify the specific requirements and challenges relating to WHP in the New Member States and Candidate Countries and to help build up the same national infrastructures already in place in "old" Europe. A third project running currently and headed by the Finnish Institute of Occupational Health titled "Workplace Health Promotion in an Enlarging Europe" complements these activities and will be concluded in 2007.

Healthy Work in an Ageing Europe – The 5th ENWHP initiative

Due to the demographic change the proportion of elderly employees in European companies will increase significantly in coming years. During the next few decades the member states of the EU will be moving into an era in which their workforces will be the oldest in history. The large generation of baby boomers reaching retirement age is not the only challenge. Only a small proportion of the popula-

tion will be of working age in future. According to reliable forecasts these two factors will affect the structure of the EU workforce by 2030. As a result, the competitiveness of the European Union during the next few decades will depend on the contribution of older workers, especially in comparison with North America and Asia.

At the beginning of the 21st century, the pension system reforms and other actions in the EU member states are planned to encourage a longer working life. In a number of countries however, working life has not been extended as wished. New and more effective means are needed which take into account that the health condition of individuals is of major importance for their participation in the labour force. And moreover, the effect work has on a person's health has proved to be one of the determining factors which influence a worker's decision as to whether or not to continue working until retirement age. The production system is also seen to prefer working with a younger age structure than the current age pyramid. But if elements of work, which are targeted mainly at young people remain the same or

increase while the proportion of young people falls, simple arithmetic suggests this distribution between younger and older workers cannot be sustained. The general aim, therefore, is to extend workability and health up to a higher age. The most important force for change is the workplace. Workplaces will ultimately affect how the age challenge is received and how successfully practices will be changed. Together the employer and the worker should form a team that can change age practices and methods of operation. Both will have to take responsibility for health issues. It is possible to extend working life through improved individual health and lifestyles as well as through a healthier work organisation and environment. Workplace health promotion therefore should not be regarded merely as an additional measure or appendix; it has to take a central position in company policies and strategies.

The 5th ENWHP initiative has dealt with these facts and the results were presented at the 5th European Conference in Linz (Austria). An important message was conveyed to the European community of stakeholders interested in workplace health promotion. This message invites them to support a change of company attitudes to the ageing of their workforce. In many companies, the ingrained prejudice that an ageing workforce brings disadvantages still exists. Although physical abilities diminish with age, older workers possess a wide range of skills and abilities that are all key to today's economy. Many skills and abilities, and especially communication, organisational and social skills, only mature in the latter half of life. Others, particularly mental ability, rarely diminish with age. The message also addresses the case for investing in workplace health promotion. It is encouraging and stimulating as well to see that companies, public administrations, hospitals and schools are investing in good workplace health practices. They are keen to get involved for three major reasons:

they believe in the values of working and living in a healthy way, they accept the need to respond to the challenges resulting from demographic change in all European countries and they are convinced that these engagements are investments which contribute to their core targets, whether they refer to economic performance, efficient health care, a high level of education or a high standard of services to the public.

How to use this paper

This paper is one of 2 reports which conclude the 5th ENWHP initiative. The initiative started in 2004 and was concluded with the Linz conference in June 2006. The 2 reports should be seen as complementing each other. The report under the title "Healthy work in an ageing Europe – A European collection of measures for promoting the health of ageing employees at the workplace" provides a collection of 20 national chapters on WHP for ageing workforces giving an overview from the national point of view on this topic regarding the legal basis, policies and proposals from the different players involved, such as companies, private services or scientific institutions.

This paper consists of two parts. The first depicts the demographic context and the status of ageing workers, and the second portrays the measures that can be taken to help improve the status of this group of workers. It focuses on activities and tools available at company level for prolonging working life. They can be used to identify the strengths and weaknesses of the company with the present and future personnel structures and to introduce measures to maintain the working ability of the employees. The strategies and tools presented are based on scientific and practical knowledge which have been acquired from discussions on ageing issues over the last 20 years.

Part I: Demographic context

1. Ageing workforces in Europe: A challenge for workplace health promotion

The discussion about the demographic change in Europe's population can be reduced to one simple formula: The number of young people is increasingly declining, the number of older people rising. According to statements by the European Commission, three basic trends are responsible for this development (European Commission 2005): 1) The

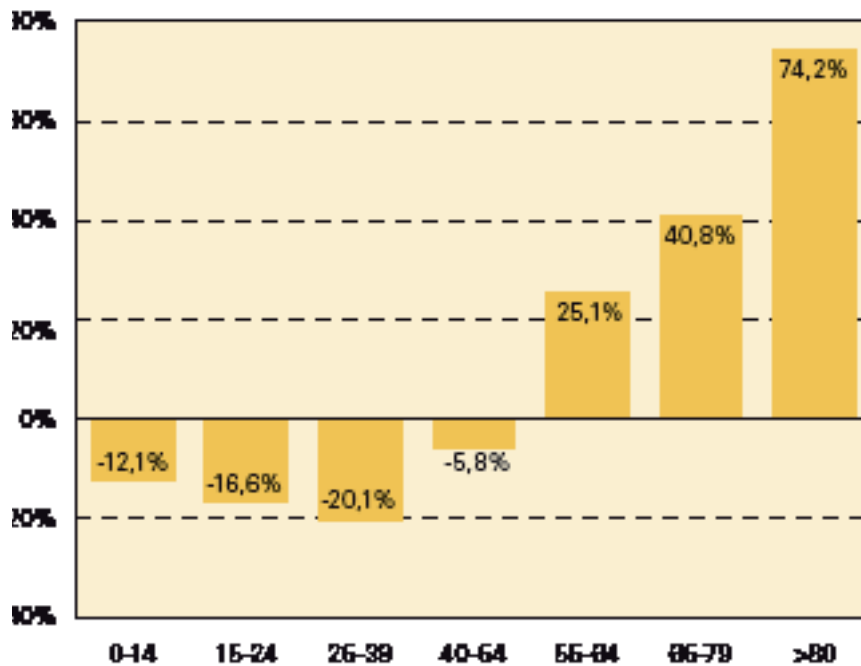
continued rise in life expectancy owing to a significant improvement in the health and quality of life of Europeans. 2) The increase in the age group over 65 up to 2030 when the children of the "baby boom generation" reach retirement age. 3) A constantly low birth rate owing to numerous factors.

Table 1: EU population statistics (summary table)

Life expectancy rate		2003
EU 15		
- at birth, man/woman		76/82
- at 60 years of age, man/woman		20/24
EU 25		
- at birth, man/woman		75/81
- at 60 years of age, man/woman		29/24
Proportion of >65-year-olds	1992	2003
EU 15	14,9	16,8
EU 25	14,3	16,1
Fertility rate	1960	2000
EU 15	2,5	1,5

Source: European Communities 2004

Against this backdrop the population in the EU is expected to decline in the first half of this century (cf. table 1).

Table 2: Ageing of the European population up to 2030

Source: European Commission, 2005

According to this, society will undergo far-reaching structural changes: Family structures will change, there will be more „older workers“ (55 to 64), more „senior citizens“ (65 to 79), more „very old people“

(80 and older), fewer children, youths and adults of working age. Expressed in absolute figures, the population of the EU will fall by about 7 million and the working population by roughly 52 million.

1.1 Companies are facing a challenge of historic proportions

The demographic change in the population is leading to far-reaching consequences and challenges for the world of work. Europe has been undergoing a dramatic decline in the employment of older workers since the end of the 70s. So far financial incentives have played a “supportive” role. In view of high unemployment (also among the young) it was and still is common in companies to adapt their workforce structure by taking recourse to financially attractive early retirement models. Whereas only 27.8% of the older workers aged from 55 to 64 mention normal retirement as the reason for stopping work in the period from 1995 to 2002, roughly 30% – i.e. approx.

4 million people per year – give early retirement as the main reason (Eurostat 2003).

One consequence of the developments described is that the employment rate of older workers in the EU is at present only about 42% – compared, for example, with 59% and 62% in the USA and Japan respectively. The figures in the member states vary quite considerably. Whereas Sweden, Denmark, the UK and Estonia lie well above the 50% threshold, not even one third of older people are in employment in Austria, Italy, Malta, Luxembourg, Hungary, Belgium, Poland, Slovakia and Slovenia (cf. table 3).

Table 3: Employment rates of 55 – 64 year old workers in 2005

	Employment rate (%)	Difference between the rates and EU target by 2010 (%)	Change 1998/2005 (%)
Sweden	69,4	>	6,4
Denmark	59,5	>	7,5
UK	56,9	>	8,4
Estonia	56,1	>	5,9
Portugal	52,7	>	16,5
Cyprus	51,6	>	9,9
Finland	50,6	>	1,2
Ireland	50,5	>	0,5
Netherlands	49,5	0,5	13,2
Lithuania	49,2	0,8	10,7
Latvia	46,1	3,9	12,2
Czech Republic	45,4	4,6	7,7
Greece	44,5	5,5	7,4
Spain	43,1	6,9	8,0
Germany	41,6	8,4	2,6
France	37,9	12,1	9,6
Austria	33,0	17,0	15,7
Italy	31,8	18,2	3,4
Malta	31,8	18,2	8,9
Luxembourg	31,7	18,3	6,6
Hungary	31,4	18,6	3,7
Belgium	30,8	19,2	0,5
Poland	30,7	19,3	6,8
Slovakia	30,3	19,7	7,5
Slovenia	27,2	22,8	-4,9
EU 15	44,1	5,9	7,5
EU 25	42,5	7,5	6,7

Source: http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1073,46870091&_dad=portal&_schema=PORTAL&p_product_code=em014

The low employment rate of older workers in Europe represents a waste of individual life chances and social resources. As a result of the sustained rise in life expectancy, people today have a greater chance of developing their potential during a longer life. For the economy as a whole the increase in the employment rate of older workers is of crucial importance if economic growth is to be promoted owing to the expected decline in the working population and if the tax revenue and the social security systems – including the guarantee of reasonable pensions – are to be safeguarded. Long-term economic growth will be considerably impaired if we do not succeed in raising the employment rate of older workers and, as a result, in increasing productivity.

In order to overcome these challenges, the EU set itself two important objectives: In 2001 the European Council of Stockholm resolved that half of the EU population in the age group from 55 to 64 should be in work by 2010. In 2005 the average of the 25 EU countries was 42.5% and so a shortfall of 7.5% has occurred between reality and the set target, with in some cases substantial differences between the individual countries (cf. table 3). The European Council of Barcelona also agreed in 2002 that the average age at the end of a working life in the EU should rise by five years from the current figure of about 60 by 2010. Here, too, there are similar differences in a comparison between the starting situation and the attainment of the objective.

In order to make the objectives become reality, ideas and action are needed on how to keep employees healthy in order to keep them longer in the work process and to better exploit their potential than before. In other words: This is exactly the field where workplace health promotion strategies and activities can support the effects of the demographic change in companies.

1.2 Promoting the work ability and employability of older workers

Results of various studies show that a higher labour market participation and higher employment rates of older workers can be achieved if adequate conditions are created and suitable strategies implemented: The rise in the employment rate of older workers and the increase in the average retirement age are not only attributable to a general growth in employment. An appreciable rise in the employment rates of older workers was even attained in member states which, on the whole, record low growth rates in employment. A longer working life can only be promoted if special conditions of occupational safety and health, work organisation and learning in the company are created.

Health and ageing

Firstly, there are well-founded indications that the participation of older workers on the labour market is determined in the long term by health limitations and disorders. According to the Work and Health Interview Study, which was carried out in 2003 by the Finnish Institute of Occupational Health and whose participants were representative of the Finnish working population, in the age group of 55 - 64 years 50% of the working men and 60% of the working women had long-term illnesses. The musculoskeletal syndrome becomes more common with age. Psychological symptoms and mental disorders were experienced by about one-quarter. Of all of the working people with long-term illnesses, about 40% reported that their illnesses interfered with their work (Ilmarinen 2006).

According to the data of Eurostat, 17% of the 55 to 64-year-olds in the EU of 15 states mention "illness or disability" as the main reason for stopping their

last activity. This is the third most frequent reason mentioned after "normal retirement" and "early retirement". If those who retire owing to reduced employability are broken down according to occupations, major differences in occupation and activity become apparent: The rates are particularly high in physically very demanding activities whereas they are comparatively low in jobs which tend to have cognitive requirements and large decision latitudes (Morschhäuser 2005).

The same conclusion can be drawn from an analysis in which Adriaan Kalwij and Frederic Vermeulen (2005) examined the participation of older people in the labour market in more detail. The data used were drawn from the new Survey of Health, Ageing and Retirement in Europe (SHARE). This survey contains detailed data on the life circumstances of a representative sample of individuals aged 50 and over in 11 European countries. A general result of this study is that the health condition of individuals is of major importance when studying its effect on labour force participation. 8 different health indicators, which range from objective measures like an individual's maximum grip strength to the more subjective health measure indicating whether or not one has a good self-perceived state of health, have a significantly different impact on an individual's participation. They also illustrated the economic importance of good health by estimating participation rates corresponding to a population that was in perfect health. Participation would be up to 10 percentage points higher in several countries like Austria, Germany, Netherlands, Spain and Sweden. Moreover, they find that the declining state of health with age accounts substantially for the decline in participation rates with age.

The relation of age, health and continuing to work was also analysed carefully in the data taken from the results of a European study of work environment conditions in 1995 and 2000 conducted by the European Foundation for the Improvement of Living and Working Conditions in Dublin (Molinie 2003). The respondents that were under 60 years of age were asked to answer the question “Do you believe that you could do the same work you do today when you are 60 years of age?” Of the factors studied, the effect of work on a person’s health proved to be the most significant obstacle to that person continuing to work in the same job at the age of 60. There were no significant differences between the ability of under- and over-45-year-old workers to continue to work in relation to the studied risk factors. The perceived effects of work on health are apparently an important indication of the direction in which European working life should be developed insofar as the idea of working at the age of 60 is a goal worth promoting.

Quality of ageing workers’ life

The health risks and sickness-related limitations of the professional performance of older workers are also caused by stress and strain processes in the work and activity biographies. The state of health and efficiency of older workers is frequently the result of these prolonged processes. This is shown, for example, by longitudinal studies in various job groups over a period of 10 years.

Here, Ilmarinen (2006) and Ilmarinen/Tempel (2003) discovered three groups of risk factors:

- High physical work demands, e.g. static muscle work, lifting and carrying heavy loads, repetitive work, bent or twisted body posture.
- Stressful and hazardous working environment, e.g. dirty or wet ambient conditions, risk of ac-

cident, heat, cold or rapid temperature changes.

- Badly organised work, e.g. role conflicts, fear of poor performance, lack of degrees of freedom and possibilities of influence, lack of career prospects or insufficient recognition by supervisors.

According to the results of the European Foundation survey in 1995 and 2000, it must be noted that, on the contrary, the above-mentioned risk factors are firmly established or have even increased, especially from the point of view of ageing workers (Ilmarinen 2006):

- Exposure factors of employees over 45 years of age in the physical environment remained relatively the same between 1995 and 2000. Over 20% of men are exposed to noise or vibration or both for at least half of their working hours, and just under 20% are exposed to air impurities. The noise exposure of ageing men has even increased. The exposure and stress factors in the work environment are virtually the same for employees of all ages. Similar exposure may, however, be a bigger risk for the work ability of an ageing employee because the exposure may have continued for several decades.
- Physical work demands increased among ageing employees, except for repetitive work, during 1995 – 2000. Approximately one-third of ageing men and women are exposed to poor work postures for at least half of their working hours, and 45% are exposed to repetitive work. Exposure to poor postures at work has even increased. About 24% of ageing men and 17% of women handle heavy loads. Ageing employees work more often in physically demanding occupations than younger ones, for example, because they have less education. Physical workload and the resulting musculoskeletal disorders are still a significant cause of work disability among

ageing employees. About 40% of ageing men and women report that their work affects their musculoskeletal syndrome. Because physical functional capacity normally decreases with age, an extended career in physically demanding occupations is neither reasonable nor possible without a significant lightening of the workload.

- Many changes are apparent as regards the mental work environment even though not everything seems to be progressing in a favourable direction. In 2000, about one-quarter of ageing employees used computers for at least half of their working hours, and more than half of them had to perform complex tasks. Both the use of computers and complex tasks among ageing employees increased. These changes can be considered positive and they illustrate the prerequisites and potential of ageing employees to change in working life. Also supervisory work improved during 1995 – 2000, as measured by the increased possibilities to discuss work-related issues between staff and supervisors. About 78% of men and 84% of women reported having possibilities to discuss work-related issues with their supervisors. On the other hand, tight work schedules have remained a major problem among ageing employees, and learning new things through work has decreased significantly among them. The continuous change in working life and the related tight schedules slowed the learning of new things among ageing employees. Also ageing employees' regulation of their own work did not improve in 1995 – 2000. About one-third of them were not able to choose the time of their work breaks, the order of their tasks, procedures and methods, and their workplace. Forced work and tight standards may, however, eat away at the meaning and effect of changes that are otherwise considered positive. About 40% of ageing men and women reported that

their work has caused psychosomatic symptoms and stress.

- According to Eurostat the number of new cases of occupational disease increases significantly with age. Whereas there were 39 new cases of occupational disease among people aged 45 – 54, the respective number among people aged 55 – 64 was 69 for every 100,000 employees. Most occupational diseases were caused by physical factors in the workplace. Notifiable work accidents in Europe occur most frequently among younger workers. The rate declines with age and ends with a slight rise in the age group of the 55-to-64-year-olds. However, when accidents happen, they are more serious and result in longer periods of incapacity to work than among younger employees. Fatal accidents at work also occur most frequently in the age class 55 to 64 years.

Moreover, flexible forms of working time organisation represent another element of the working conditions with which the retirement age of older workers can be raised. Between 2001 and 2002 a sharp rise in the employment rates of older workers in most member states was accompanied by an appreciable increase in the proportion of part-time workers. From 1997 to 2002 part-time jobs accounted for half of the newly created jobs for older workers and, as a result, their proportion in part-time work increased.

This indicates that the needs of older workers can be satisfied with flexible working time arrangements which result in improved reconcilability of working and private life. Going into retirement should not be a single event but a process, i.e. those affected work ever fewer hours over the course of time. Retirement/part-time is one option which deserves more attention than it currently receives.

Thirdly, longer working lives and employment rates of older employees depends heavily on their qualifications in vocational and further training. There is a connection between remaining longer in gainful employment and a good range of educational programmes. In many cases, the potential of older workers is not maximised because their qualifications are not not up to date. This can be offset however by vocational training. The international survey on the reading and writing skills in the OECD provides valuable figures in this context on the connections between age, productivity and vocational and further training. The survey comes to the conclusion that reading and writing skills are an important determinant of a worker's productivity and improve through practical work activity or deteriorate if not used. This proves that the productivity potential of older workers is not impaired by age but by obsolete skills, which can be corrected by educational programmes. With further training the employees can update their qualifications and strengthen their position on the labour market. However, on the other hand, the situation is that older employees are trained much less than other age groups. The participation of employees in educational and vocational training programmes decreases with age and this trend already commences early in working life. In order to intensify the further training of older employees, this downward trend must already be reversed early in life. Only lifelong learning can reliably prepare future employees for changes.

The occupational efficiency of older employees

Finally, no empirical proof is available that older employees are less innovative, efficient, creative and less able to cope with stress than younger workers. This frequent prejudice based on the "deficit

model of age," which interprets the occupational efficiency of older employees as the consequence of a physical/mental degeneration process, is not tenable. Therefore, there is no general degeneration dependent on age in physical/mental efficiency but, with ageing at work, changes in the structure of the efficiency take place in a healthy "older employee".

The results of laboratory tests initially appear to confirm the first statement above and therefore the so-called "deficit model of age":

- According to statistical evaluations the maximum muscle strength of a 60-year-old is roughly only 75% of the comparable values for a 30-year-old (Grandjean 1979). The efficiency of the cardiovascular system also decreases significantly with age, i.e. viewed statistically, by about 30% between the ages of 30 and 60.
- Results of measurements of physical speed, dexterity, stamina, strength and co-ordination achieve peak values between puberty and early adulthood. The respective performance curves then initially fall gradually and from the age of 40 they drop even more sharply.
- The sensory functions change during a work biography. With increasing age vision diminishes (accommodation capacity and adaptability, sharpness of vision and contrast sensitivity). The hearing threshold, especially in the high frequency range, decreases.
- As regards the age-related development of the cognitive abilities, studies available indicate both weaknesses and strengths of older workers. According to the differentiation made by Horn and Cattell between "crystalline" and "fluid" intelligence, the former is retained until old-age or even increases whereas the latter diminishes (cf. Lehr 1996). "Crystalline intelligence" is the ability to solve familiar cognitive problems and factual knowledge, "fluid intelligence" the competence

to master new types of mental tasks and the mental ability to change.

These *results of experimental laboratory measurements* provide little information, however, on the *occupational performance* of specific older workers (Petrenz 1999):

- The results relate to the measurements of individual body functions, in some cases also to peak performances which are not normally required in working life or do not play a major role (e.g. the maximum hand-closing force or the ability to retain senseless (!) equations in one's memory).
- Average values are calculated and assessed. However, the performance can be influenced to a large degree by the individual's lifestyle and work. For example, the maximum muscle strength of a trained 60-year-old by far exceeds that of an untrained 30-year-old (Rost 1991).
- Declining sensory functions but also a reduction in physical strength may frequently be offset in everyday working life by the use of glasses and hearing aids or through the ergonomic design of workplaces (e.g. through good lighting or lifting equipment).

Scientific investigations in which the occupational performance of older workers is evaluated in a comparison with younger ones using the *work result* therefore produce different results to the laboratory measurements. Such studies, where both skilled industrial workers as well as trained assembly line workers, post sorters and office employees, machine operators and skilled workers with complex supervisory activities were included, confirm "that there is no significant difference between the work performance of older and younger employees" (Kruse

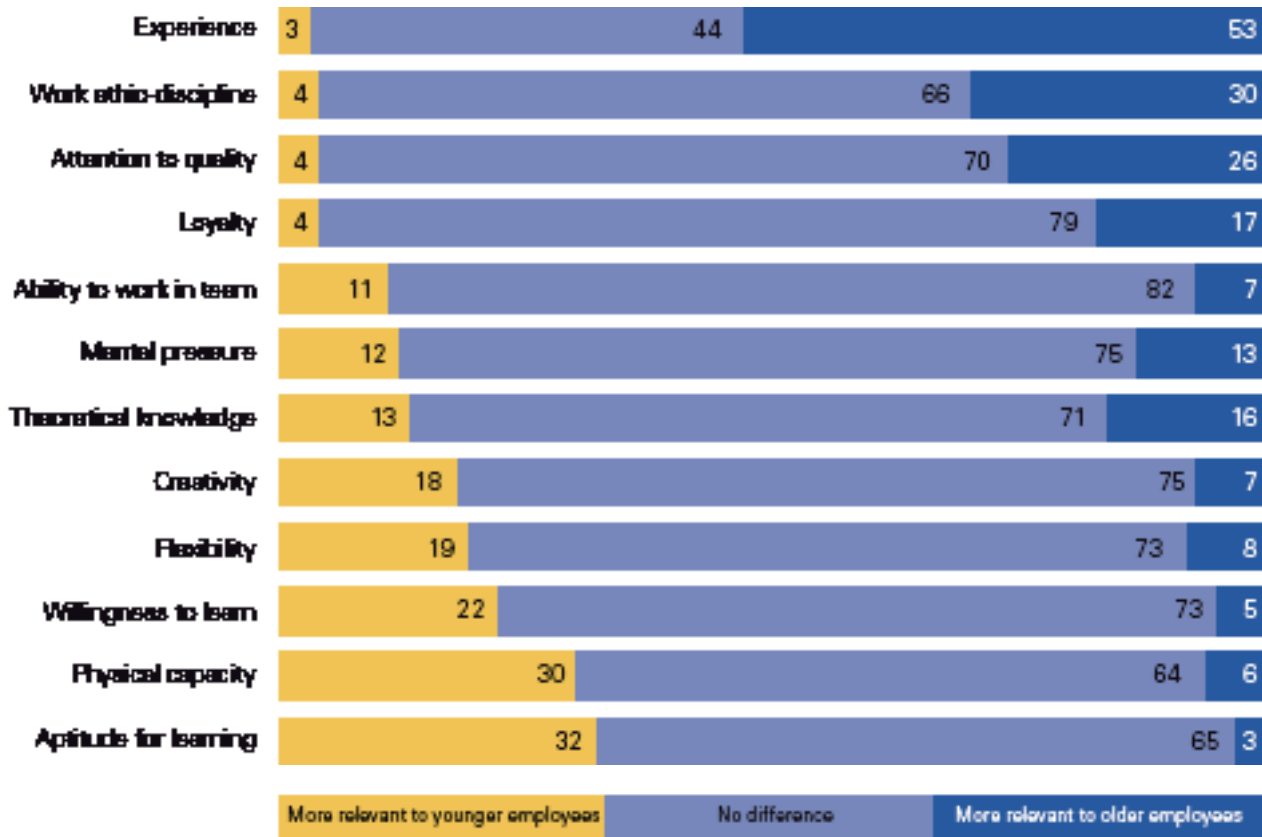
2000). Another key result of these studies is that the performance differences within one age group are much greater than those between the different age groups.

One explanation for the high occupational efficiency of older workers may be that they can *offset* any deficiencies in individual skills with strengths in others. The classic study of Salthouse (1991) comes to this conclusion: According to this study, the number of strokes of a typist over 60 is significantly lower over a defined period compared with younger women. However, the older workers read the text more in advance when typing and so they can write manuscripts in the same time and with the same quality as the younger workers. Compensation mechanisms were also discovered among successful older pianists who offset a reduction in their locomotive dexterity with the anticipation of movement processes (cf. Kruse 2000).

A representative survey by the Institute for Labour Market and Occupational Research, the so-called works panel 2002, also comes to the conclusion that older workers *in principle* are no less efficient than younger ones. In this survey different components of occupational efficiency were differentiated. Those responsible for human resources were asked their opinion as to where they saw strengths of the "younger" workers and where they saw strengths of the "over-50 workers".

The occupational efficiency of the older workers is no worse than that of their younger colleagues from the point of view of those responsible for HR who were surveyed (cf. Table 4). Two thirds of those questioned found that there are no differences between older and younger employees – in all surveyed aspects of their performance, with the exception of „empirical knowledge“. As Brussig summarised (2005): „Older

Table 4: The efficiency of older workers as assessed by those responsible for HR



Source: IAB-Works Panel 2002

workers frequently represent neither a special group nor a special problem case.”

However, certain characteristics, such as empirical knowledge, work morale/discipline or quality awareness, tend to be viewed as strengths of older workers. Other performance components, such as the ability to learn, ability to cope with physical stress or the willingness to learn, tend to be assigned to younger workers. At the same time, those responsible for HR were asked what characteristics they considered to be particularly important for their company. Here it turned out that priority was attached to the very performance components which, in their opinion, tended to be found among older workers, i.e. work morale/work discipline and quality awareness (Bellmann et al. 2003).

Generally speaking, it can be stated that the level of performance does not change in the ageing process but the spectrum of performance. Many skills, such as empirical knowledge, practice, safety awareness or linguistic skills, only develop over the course of time. Others, such as co-operation and communication skills or creativity, scarcely change. And others such as muscular strength, good vision and hearing or mental agility tend to diminish.

The change in the performance spectrum in the ageing process

Gaining experience and learning takes time. Many skills develop slowly:

- Practice, quality awareness, diligence and accuracy with a low level of complexity of the work tasks
- Safety awareness, occupational safety and health and reliability
- Company-specific knowledge and loyalty to the company, motivation
- Linguistic and communication skills
- Critical thinking and judgment
- Independence, awareness of responsibility and social competence
- Ability for dispositive thinking and to accept leadership functions

A lot evolves during a life span but scarcely changes:

- Ability to absorb and process information, general knowledge
- Intelligence and systematic thinking, ability to concentrate
- Powers of long-term memory
- Target-oriented and planned action
- Co-operation and communication skills
- Endurance: Resistance to normal physical and mental stress
- Creativity and the ability to learn (under adapted didactic conditions)
- Attention and adaptability to demands which change normally

Farewell has to be said to a lot and younger workers must be given the chance to set themselves apart:

- Muscular strength, sight and hearing, sense of touch, organ functions
- Strength and speed
- Speed to absorb and process information for complex tasks, short-term memory
- Mental agility and adaptability, willingness to take risks
- Abstraction ability
- Resistance to a high level of continuous physical and mental stress

Compiled acc. to Wolff; Spieß; Mohr (2001)

It should be noted with the results on the performance of older workers that these are average observations which say little about the work ability of the individual older worker. And according to Baltes (2001) older people “tend to differ more from each other than from younger people”. In working life this is often reflected in a “polarisation of the age positions”. On the one hand, there is an above-average number of older workers among those who are often regarded as “limited in performance” in companies.

On the other hand, older workers are over-represented in top management and in the key positions. The following applies to many companies: Workers over 60 are to be found frequently both in cognitively demanding jobs with a high social prestige (for example, as managing directors, heads of associations or doctors) and in mentally less demanding fields of work with a low social standing (for example, caretakers, heaters or manservants).

Older people, and this in fact differentiates them from younger people, have covered a longer life and working life span. How the occupational performance develops with ageing depends crucially on their biography, the nature and duration of the activities pursued, on the stresses and challenges experienced, and on the encouragement in working life and on their learning biography.

In view of this, older workers who are not exposed to demands in line with their age and are therefore overtaxed encounter difficulties in company practice. The above-mentioned factors on the efficiency of older employees indicate that it is at least just as important to change people's thinking on age and ageing to break down the prevailing prejudices against the elderly and to create a social climate in which age discrimination has no place in the world of work and elsewhere.

1.3 They still do things differently in company practice

As regards the growing importance of older employees in the future, efforts have been made in Europe for years in science and practice to develop models and strategies for workplace adaptation of older employees and to introduce them into company reality. In Finland, for example, the Finnish Institute for Occupational Medicine has already been examining the question for more than 20 years as to how the potential of employees can be retained and developed so that, on the one hand, it is available for as long as possible to the companies and, on the other hand, the employees reach retirement age as „intact“ as possible (Ilmarinen 2006). In Germany experience and results have been available since the 90s as part of the programme „Innovative Work Design – Future of Work“ of the Federal Ministry of Education and Research; they have been introduced into a „transfer phase“.

As part of these discussions, a broad range of models and concepts has been produced where the ideas and developments of workplace health promotion have acted as role models in many ways. The term of work ability is of key importance. Ilmarinen understands this as the „potential of a person, a man or a woman, to perform a given task at a given time.

The development of the individual functional capacity must be in relation to the work requirement. Both factors may change and, if necessary, be designed to be age and ageing-appropriate.“ (Ilmarinen 2006)

Accordingly, work ability results from the interaction of several person-related and workplace factors:

- General company conditions and objective working conditions, e.g. physical strain and environmental influences.
- Social environment, e.g. executives, direct supervisors, work colleagues.
- Individual training and competencies.
- Individual state of health both in physical and mental respects.

All above-mentioned influencing factors can be re-designed and changed and are the key focus and starting point of holistic workplace health promotion.

For company practice there is therefore a demand for an ageing-appropriate HR and organisation management which should combine and integrate four influencing factors and measures of workplace health promotion. In this context we talk of new concepts and a change of paradigms from a reactive HR policy, i.e. geared to older employees, towards preventive,

age-neutral action geared to lives and work biographies. The previous, one-sided focusing on “young” or the “youth” is no longer contemporary and causes companies problems under the conditions of the demographic change. Companies should therefore try to have a “healthy” age mixture and also maintain it. This results in new requirements being placed on the organisation of the HR management, e.g. a longer-term orientation or longer planning horizons of 5 to 10 years (instead of the previous 1 to 2 years) will be indispensable in order to be able to develop and implement an ageing-appropriate labour and HR policy.

If the knowledge gained from the numerous and, in some cases, above-mentioned model activities from science and practice is compared with general company reality, a noticeable discrepancy can be discovered. For example, research and implementation through model projects and network activities of so-called “exemplary companies” have enjoyed a significant upswing in the last 10 years. In company practice – and this is stressed by almost all experts – it has nonetheless been shown that the dissemination of the concepts, tools and “models of good practice” available leaves a lot to be desired. In general, older workers do not enjoy the atten-

tion which would be appropriate to overcome the problems of the demographic change as part of HR and organisation development and workplace health promotion. There are major differences in topics, a view of the problem and willingness to act between the vast majority of companies, on the one hand, and scientific and political knowledge and declarations of intent on the other. Of the three corporate strategies to deal with older employees – career design, work design, externalisation – the latter is currently still in the limelight even though the choice of strategy based on costs in recent years is slowly changing in favour of investments in job design and human capital. Such differences are quite “normal” as a time lag. The question is merely how large this time lag may become if crucial decisions on effective and necessary innovations in the long term are not taken (keyword: competitiveness). There is a need to further disseminate and implement the successfully tested strategies of staff and organisation development and workplace health promotion in line with ageing workforces.

Part II: That's what companies can do

The ageing of workforces need not be a problem and certainly not a disaster. The change in the age structure may even mean opportunities and a positive development for companies. This prospect is obvious when the work in the companies involves qualifications and variety but, at the same time, when the employees are not overstretched, are committed and have a high level of qualifications. In such cases it can be assumed that the expertise of the older workers and their longer availability, given a later departure from working life in the future, form a solid foundation on which productivity and innovations can evolve in an excellent way.

However, the demographic change may equally represent a major challenge where the emerging and expected problems differ from company to company. The risk of increasing health problems in ageing workforces rises in fields of activity where the work is physically hard or one-sided. By contrast, in areas of work with high demands on performance and workloads predominantly in the cognitive and mental field a higher proportion of older workers can create greater qualification and motivation problems.

It is therefore important for companies to first of all carefully analyse their specific starting position from the aspects of ageing. Key issues are:

1. How will the company age structure probably develop in the next few years?
2. What problems are already arising today among the older employees, what problems can be expected in the future?
3. How can the work ability and employability of older employees and their employment possibilities be maintained and promoted?

There are different action plans and a host of tools

with which the health, qualifications, motivation and therefore the work ability and employability of a company's older workers both now and in the future can be fostered. Which approach is suitable and viable for a certain company and its employees depends on the initial conditions at the company and on the specific HR tasks.

Action which has already been tried out in companies and is documented as "models of good practice" can give important ideas to companies which are at the outset of their examination of the "age issue". The fundamental procedure and individual tools may be adopted assuming the problems are comparable. A "one-to-one" transfer of models is, however, not advisable and possible; after all, every company must develop its own concept specific to the company to deal with ageing processes.

The following chapters present different procedures and concepts for promoting healthy and active ageing in companies as well as time-tested tools:

- Chapter 1 describes tools to analyse the initial situation at the company and to identify the need for action.
- Chapter 2 deals with action approaches with which work and manpower deployment can be organised in an age and ageing-appropriate way.
- Chapter 3 shows, using a concrete company example, that it is advisable and successful to develop an "integrative" strategy involving different but intermeshing measures in order to achieve effective and lasting promotion of the work ability and employability of the workers.

1. Instruments for healthy and active ageing

Four tools to analyse the initial situation at the company and to identify the need for action are presented in the following:

- An *age structure* analysis shows the actual age structure of the workforce and its expected development in the future. It can provide a good launch pad to determine and discuss possible HR problems in the company related to the change in the age structure.
- The *check list to identify the need for action regarding the age structure* focuses on the working and employment conditions in the company. Proceeding from the HR policy pursued, the question is raised as to what risks this policy involves for an ageing workforce.
- By contrast, the *Work Ability Index* focuses its sights on the employees and their work ability assessed by themselves. Proceeding from the employees, an examination is made of whether

reductions in their work ability are imminent in the future.

- The *workshop concept "Quality of Work – Healthy into Retirement"* involves the sensitisation and sharing of experience in a group. The topics explored include the reasons why there are difficulties of "working in old-age" in the company and what action can be taken to solve these problems.

These four tools represent a selection. There are numerous other procedures and tools which can be used as alternatives or supplements. Important information on age-related problems, the need for change and expedient action plans may, for example, also be gained from an age-differentiated analysis of staff deployment and the level of qualifications, formal and informal talks with older workers or with skilled workers and executives.

1.1 The age structure analysis

The age structure of the working population is characterised in most countries by the fact that there are comparatively few workers aged 55 and more and relatively few young workers under 30 in relation to the number of middle-aged workers. Many companies have therefore "compressed" age structures. However, the age structure in individual companies may also be centred on the "youth" or the "old" or even balanced – contrary to the general trend. How specific workforces are made up in terms of age depends, for example, on the extent of recruitment and staff turnover in the companies, on age and the size of the enterprises, on the branch of industry and region where they are located, on the usual age of retirement of older employees or on the economic situation.

An analysis of the company-specific age structure may offer a good springboard in order to examine the "age issue" more closely in the company. The age structure analysis is geared to the present and, at the same time, ventures a look into the future:

- The *present age structure data* are recorded for the workforce as a whole and, if necessary, for individual company sections or workforce groups.
- A *forecast of the future age structure* is prepared on the basis of certain assumptions about the development of the workforce.

An age structure analysis provides information. However, it mainly raises questions. The processed data alone reveal nothing about existing or possible HR

problems. They must be interpreted in connection with the work and its demands as well as the HR policy and planning in the company. A high proportion of older employees means something different in car assembly work or in a foundry than in a payroll accounting department or an adult education centre. As the age structure analysis focuses on the future workforce situation, it can act as an early warning system which, for example, indicates at an early stage the need for qualifications, imminent staff bottlenecks or the necessary succession planning for older workers about to go into retirement.

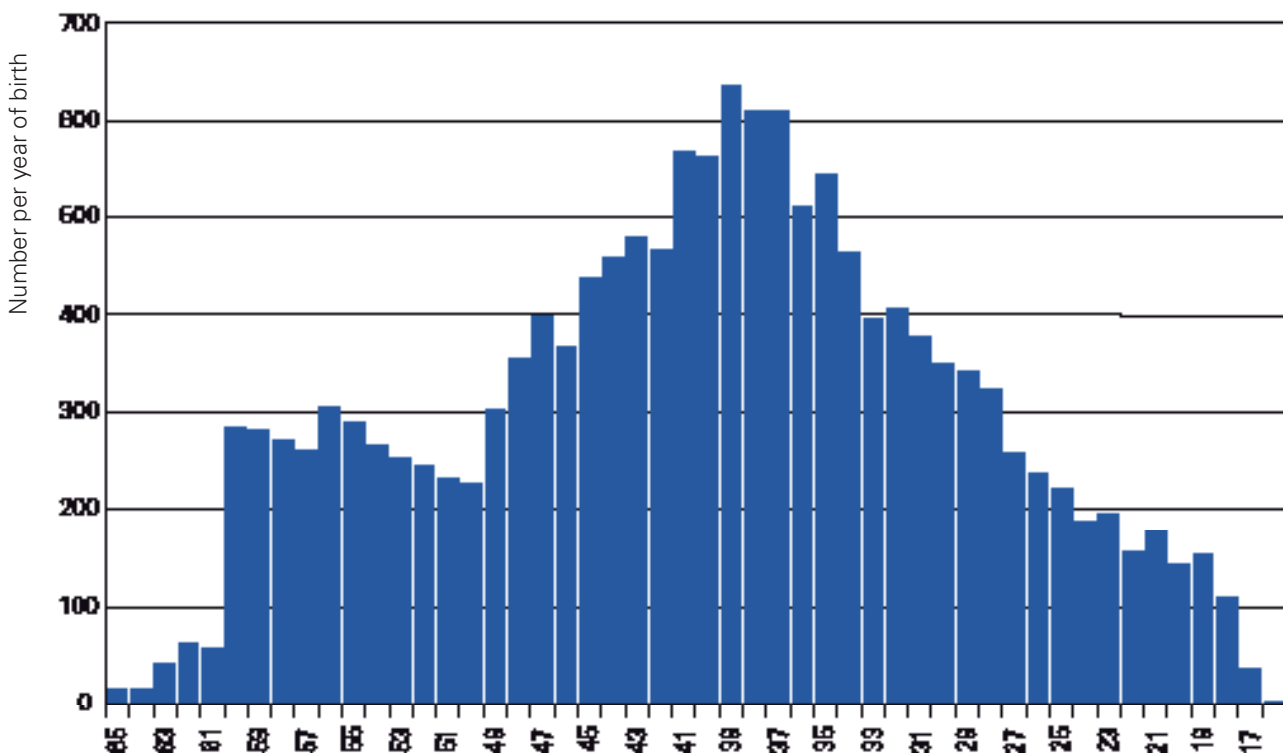
The age structure analysis merely includes the *calendar age* of the employees. Whether someone is “old” at 52, 65 or 70 or is viewed as an “old person” by other people is, however, a question of assessment. And this is not a fixed factor but is highly variable. It differs from person to person (with the same calendar age) and it changes for the individual with the environment in which he lives. In addition to the unambiguous calendar or chronological age, we therefore also talk about the *biological age* which describes the actual physical or mental fitness (medico-physiological assessment), the *social age* (social assessment) and the *perceived age* (individual assessment).

Calculation and presentation of the actual age structure

The first step in the analysis is to examine the actual age structure of the workforce as a whole. Here, the number of employees can be shown per year of birth or in line with previously created age groups (e.g. “under 20”, “20 to 24”, “25 to 29” etc.). It is always expedient for medium-sized and large enterprises

not to calculate the absolute figures but the percentages in order to be able to compare data of different years or in different company sections. Another comparable value is the average age (as a rule the arithmetical mean).

Table 5: Company Example: Age Structure of the Employees



Presented in a bar chart, it can be seen which age groups dominate in the company and which tend to be underrepresented and whether all age cohorts are represented to an appreciable extent.

The age structure data provide indications of possible HR challenges which can only be estimated more precisely in connection with other circumstances and developments in the company. If the age structure exhibits noticeable frequencies of certain age groups, questions can be formulated in the follow-up which should be discussed in the personnel management, for example:

- If older workers predominate (age structure centred on older workers):
 - Is the time of the probable retirement of the employees known?
 - Is there a threat of staff bottlenecks or a loss of expertise owing to the departure of the older workers?
 - Are there procedures for the early and systematic transfer of knowledge in the company (e.g. succession and mentoring models)?
 - Do health, qualification or staff deployment problems frequently arise with the older employees?
- If the middle-aged workers predominate (age structure centred on the middle-aged):
 - Is it to be expected that the middle-aged

workers born in the years with high birth-rates will remain at the company in the long term and therefore also age together as a group?

- Will they go into retirement at a later date than today's older generation?
- How can the work ability and performance of this large age group be promoted so that reductions in performance can be largely prevented as they grow older?

It is revealing, especially in larger enterprises, to evaluate the age structure of individual works and locations, of certain departments or groups of workers separately (e.g. industrial and salaried workers, executives) or to compare them according to their age structure. In this way it can be seen whether there are certain company sections with a particularly high average age of the workers. Here, too, peculiarities raise questions which should be discussed, for example:

- Is a higher average age in certain company sections particularly problematic in view of the work demands there?
- Can any priorities be derived from the data in which company sections or for which groups of workers concepts of age-appropriate work design should be developed as a focal issue?

Procedure to analyse the actual age structure

1. Establishment of the units which are to be examined:
 - the whole company
 - certain company sections, departments or locations
 - selected groups of workers or functions (e.g. executives, industrial/salaried workers, groups with different qualifications)
2. Calculation and presentation:
 - addition of the number of employees per year of birth or assignment to age groups created (five or ten-year groupings; if necessary, orientation of the groups to the system of the existing HR statistics)
 - calculation of the percentages

- calculation of the average age
 - presentation: in tables or graphics in the form of bar charts or graphs
3. Interpretation of the results:
- comparison of the results of different analysis units (company sections, groups of workers)
 - if necessary, comparison of the age structure and the averages with comparable data in the branch of industry
 - conclusions and discussion of possible HR problems

Forecast of the age structure

The current age structure represents facts and can be simply calculated. The projection of the age structure into the future, however, always entails assumptions and uncertainties and is therefore more difficult to perform.

The data determined on the current age structure form the starting point for the forecast. However, these cannot be simply extrapolated; then the forecast would be very inaccurate. On the contrary, assumptions about key factors influencing the future age structure must first be made and on which the calculation is based.

Major variables which have to be defined are:

■ Size of workforce

Can a by and large constant workforce size be assumed? Or will it tend to increase or decrease? What figure is probable here?

The business development, planned dismissals and company restructuring must be taken into account here.

■ Recruitment

To what extent are new recruits to be expected? How many trainees/apprentices are there and how will the training rate develop? Will all trainees/apprentices be given an employment contract? What will be the probable age distribution of the new recruits?

■ Staff turnover

What staff turnover rate, broken down according to the different age groups, can be assumed?

Will the rates tend to remain the same in future or are changes probable?

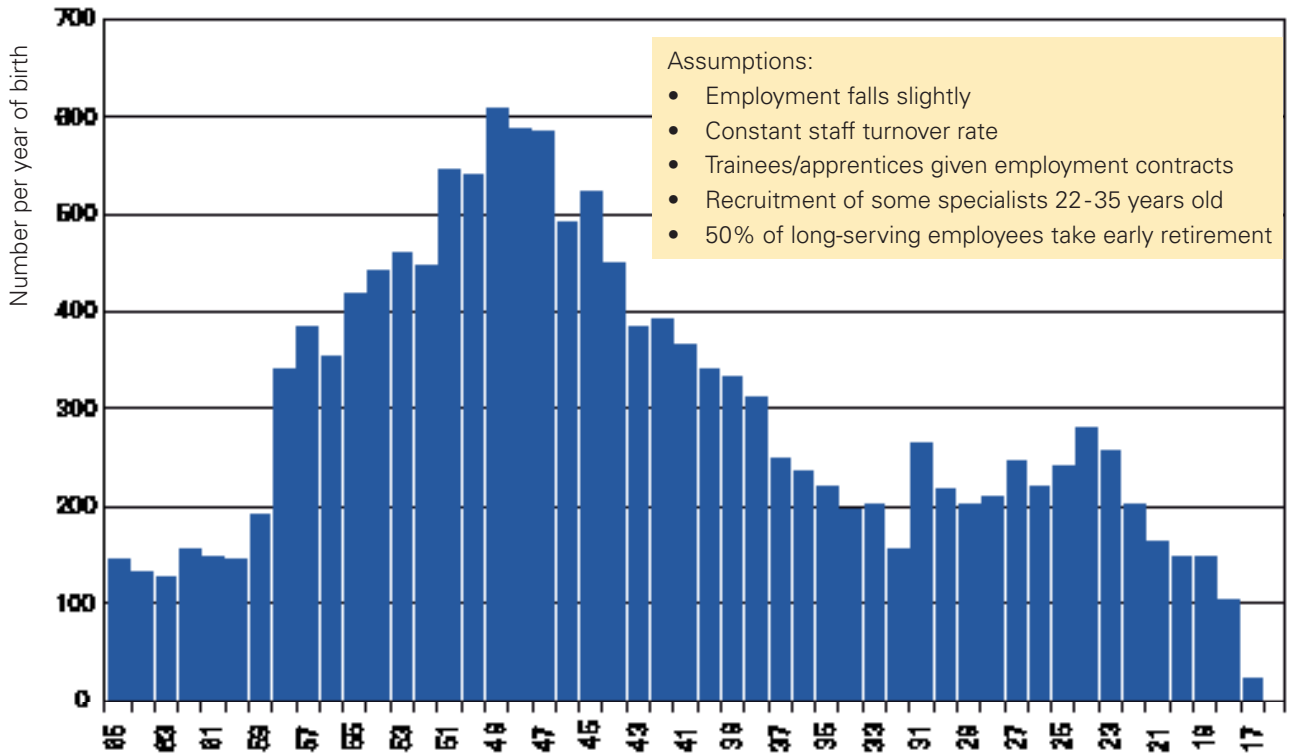
■ Retirement

At what age will the older employees probably leave the company in future? How many workers will go into retirement in the coming years?

Changes in statutory provisions, for example a higher age of retirement or fewer early retirement possibilities, must be allowed for.

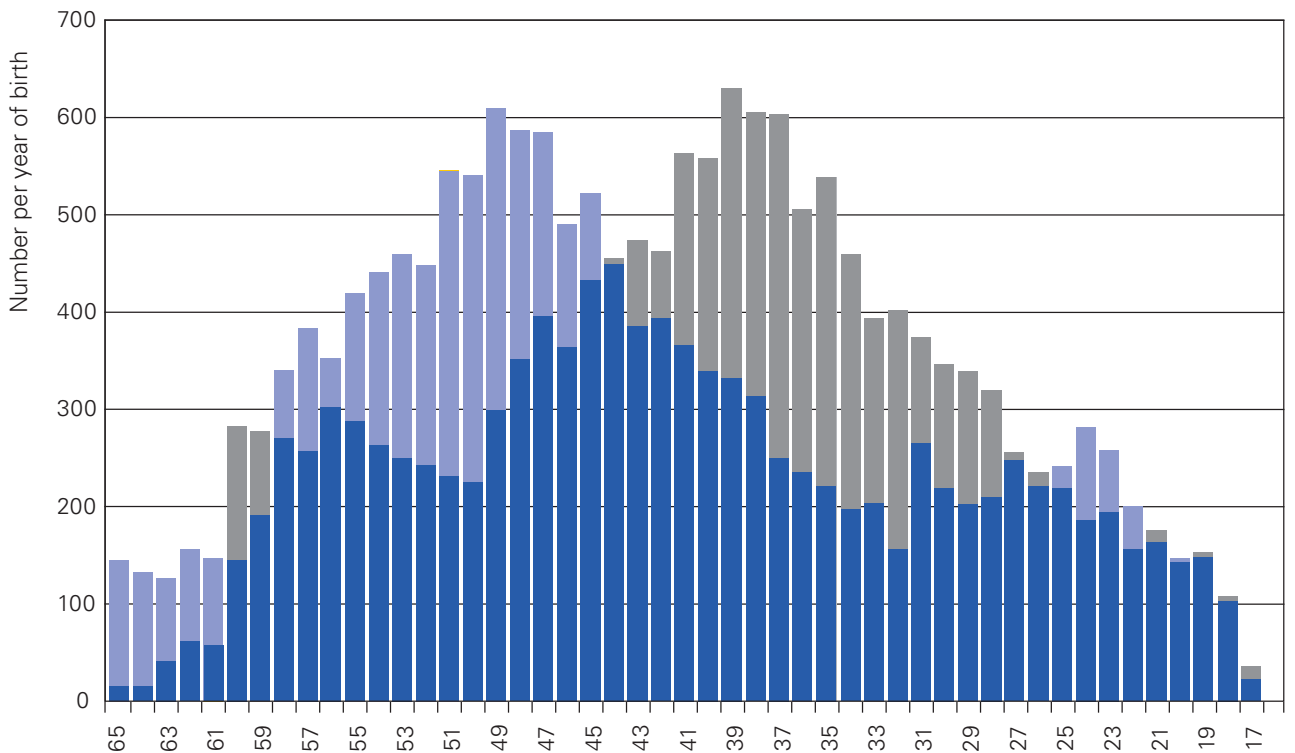
As a forecast time, it is expedient to select a period of between five and ten years. It should not lie further in the future so that realistic assumptions can still be made. It should, however, be far enough into the future so that major changes can also be illustrated.

Table 6: Company example: Forecast of the age structure for the year 2014



For the calculation and presentation of the age structure of the future, you should also proceed in the same way as when recording the current age structure in order to permit direct comparability of the data.

Table 7: Company example: Comparison of age structures 2004 - 2014



A comparison of the current and the future age structures shows whether the workforce will tend to become younger or older and the extent to which this can be expected to happen. Gaps and pronounced deviations between the age groups today and in the future become clear and their problems examined. Noticeable increases in certain age groups may indicate possible HR problems in the future.

If the forecast shows, and this is frequently the case, a development from an age structure centred on middle-aged workers towards an older workforce, the following questions arise:

- Does the growing proportion of older workers in the company conceal risks of increased absenteeism, a rise in the number of workers “with diminished capabilities”, qualification shortcomings or limitations on the flexible deployment of staff?
- What can be done today to maintain and promote efficiency and innovative capabilities of the future older workers?
- Is a great loss in know-how to be expected if the workers from high-birth-rate years go into retirement as a large group? What counteraction can be taken in good time?
- In order not to allow any “age gaps” arise and to balance out the age structure, should young workers be specifically employed or more trainees/apprentices be given employment above and beyond actual staff requirements?

The aim of the forecast is to avert possible HR problems in the future today on the basis of a realistic data basis and to develop strategies to master the change in the age structure before age becomes a problem in the company.

Procedure to forecast the age structure

1. Starting point: current age structure data
2. Calculation and presentation:
 - Definition of the variables (employment development, recruitment, staff turnover, retirement)
 - Forecast of the current age structure data allowing for the assumptions made (if necessary, development of several scenarios with different parameters)
 - Presentation: in tabular or graphic form using bar charts or graphs, compared with the current age structure
3. Interpretation of the results
 - Comparison of the current age structure with that forecast
 - Identification of possible HR problems in the future
 - Development of strategies to solve the problems

Further remarks

An easy-to-use and generally applicable method to analyse a company’s age structure has been presented in this chapter. Many companies have developed their own procedure with which they obtain exactly the information on the age structure which they regard as being important. Tools which are developed at the companies themselves have major benefits: They comply with the specific aspects of interest and take into account company peculiarities and therefore do not proceed schematically.

If a company is looking for external assistance for performing an age structure analysis, numerous manuals as well as offers of advice specialised in this subject are available. EDP versions are also to be found among the tools developed.

1.2 Check list to identify any need for action in terms of the age structure

The check list to identify any need for action regarding the age structure focuses on the working and employment conditions in companies. An examination is made of whether the labour and HR policy currently in practice can cope with a rising proportion of older workers and of what risks this policy entails for an ageing workforce.

Different HR fields of action are studied:

- Recruitment of staff
- Qualifications (formal and informal)
- Work organisation
- Staff development plans
- Workplace health promotion and integration
- Know-how transfer
- Organisation of working hours
- Corporate culture

The check list is a tool for self-assessment. It can be used by individuals responsible for human resources to help them gain an initial overview of the need

for action and expedient action plans to cope with the change in age structure (review of situation). This check list can also be used as part of a company workshop to conduct a joint strength/weakness analysis.

Several check lists have been published to identify the need for action as regards the age structure as well as “Quick Checks” with selected key questions. The version presented below comes from the study “Erfolgreich mit älteren Arbeitnehmern. Strategien und Beispiele für die betriebliche Praxis” (Successful with older workers. Strategies and examples for company practice), published by the Bertelsmann Foundation and the Confederation of the German Employers’ Associations (2003). It was revised slightly by the authors for this brochure.

The check list is followed by a “Quick Check” and reference is also made to two online variants.

Check list to identify the need for action in companies in terms of the age structure

Notes on using this check list

After you have completed the check list, take a closer look at the answers you have marked:

- The answers **on yellow fields** refer on the one hand to risks. On the other hand, they indicate possible approaches to cope with the change in the age structure which have so far not been put into practice in the company. Here we advise you to examine the question in more detail to see whether it is expedient and feasible to pursue the action and strategies in your company in future.
- The answers **on blue fields** simply refer to approaches which are already being pursued at the company. Here we advise you to ensure that these strategies are continued to be pursued in the future or, where necessary, are even strengthened.

Recruitment of staff	
We are increasingly finding fewer young specialists.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
It must be assumed that the demographic change on our regional labour market will in future result in difficulties in recruiting staff.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
When we recruit staff at our company, we pay attention to certain age limits.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We also recruit older applicants at our company.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We formulate vacancy advertisements so that older skilled workers are also targeted.	<input type="checkbox"/> yes
	<input type="checkbox"/> no

Qualifications	
We offer the employees in our company further training programmes so that they can increase their qualifications.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We regularly examine whether our older workers participate in in-house further training programmes just as frequently as the younger workers.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We actively support our older workers so that they also take part in further training courses.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We use teaching methods in in-house further training courses which suit older and adult workers.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
Our employees of middle age and older master new technologies just as competently as our younger employees.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We have sufficient information on future qualification needs in the company and possible needs for qualifications of the employees.	<input type="checkbox"/> yes
	<input type="checkbox"/> no

Work organisation	
We make sure that our older workers are deployed just as frequently as the younger ones at workplaces where new processes and developments play a role and we promote this policy.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
Our objective is for our workers to frequently change their work activities and workplace and therefore train their learning skills.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
The employees in our company generally work together in groups or teams.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We organise work and group tasks in such a way that they are relevant to learning and therefore permit on-the-job training.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
The deployment range of the older workers is just as large as that of the younger ones.	<input type="checkbox"/> yes
	<input type="checkbox"/> no

Staff development plans	
We regularly conduct staff appraisal talks with all workers to determine the qualification needs and discuss questions of their further careers.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We support the strategy of our employees actively planning their further careers and we support them in this.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We hold staff development programmes for all employees, also for those "over 50".	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We define age-appropriate workplaces and use these selectively for the deployment of older workers.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We promote the employees working in different areas and fields in the company over the course of their working lives so that they can further develop their vocational skills.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We intentionally make sure that our employees do not perform routine work over prolonged periods (10 years and longer).	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We pay attention to a "limited staying time" of employees in age-critical work areas and offer them the opportunity of changing to physically and mentally less demanding workplaces after pursuing one activity for a long time.	<input type="checkbox"/> yes
	<input type="checkbox"/> no

Workplace health promotion and integration	
Certain workplaces and work areas in our company are "age-critical" (e.g. physically demanding work, cycle-dictated work, activities with high levels of pollution in the working environment).	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We take positive action to reduce working exposures and to promote the health of the employees (e.g. ergonomic workplace design, organisation of health workshops, back school).	<input type="checkbox"/> yes
	<input type="checkbox"/> no
Work is performed at our company in shifts in some cases (alternating or night shifts).	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We enable older workers, after doing night shift for many years, to stop working shifts.	<input type="checkbox"/> yes
	<input type="checkbox"/> no

We organise the shift work to create as little impact on health as possible (planning of shift sequences, location, duration and distribution of the working time according to health criteria).	<input type="checkbox"/>	yes
	<input type="checkbox"/>	no
We organise the workflows and work deployment in such a way that older workers schedule their work themselves and can therefore largely dictate their work rhythm themselves.	<input type="checkbox"/>	yes
	<input type="checkbox"/>	no
We have sufficient information on the state of health of the workforce and possible approaches to promote health at the company.	<input type="checkbox"/>	yes
	<input type="checkbox"/>	no
Our company has a systematic in-house integration and case management (existence of an integration team, regularly applied tools, systematic data surveys, case management, deduction of preventive action)	<input type="checkbox"/>	yes
	<input type="checkbox"/>	no

Know-how transfer

We discuss with our employees approaching retirement in good time when and in what form they want to leave the company.	<input type="checkbox"/>	yes
	<input type="checkbox"/>	no
Our older employees have specific (empirical) knowledge which is essential for maintaining the company work processes.	<input type="checkbox"/>	yes
	<input type="checkbox"/>	no
We specifically form work groups of mixed ages in order to promote the exchange of knowledge between the generations.	<input type="checkbox"/>	yes
	<input type="checkbox"/>	no
We maintain special systems for transferring knowledge between the generations (e.g. sponsoring systems, mentoring, tandems or mixed-age project teams).	<input type="checkbox"/>	yes
	<input type="checkbox"/>	no
We promote models of sliding transition into retirement in order to maintain the efficiency of our older workers and support the handover of knowledge from old to young.	<input type="checkbox"/>	yes
	<input type="checkbox"/>	no

Organisation of working hours

We offer our employees different working time models (e.g. part-time, free time en bloc, job sharing).	<input type="checkbox"/>	yes
	<input type="checkbox"/>	no
We enable our employees to organise their working time flexibly.	<input type="checkbox"/>	yes
	<input type="checkbox"/>	no
We offer our employees long-term working time accounts.	<input type="checkbox"/>	yes
	<input type="checkbox"/>	no
We enable our workers to take time-out or sabbaticals in order to undergo further vocational training or to 'rest and recuperate'.	<input type="checkbox"/>	yes
	<input type="checkbox"/>	no
We offer the older workers – depending on the individual and company interests – different models for going into retirement (e.g. working up to the statutory age limit, part-time, flexible transition into retirement).	<input type="checkbox"/>	yes
	<input type="checkbox"/>	no

Corporate culture	
We have strategies to counteract prejudices about a generally poorer efficiency of older employees in the company.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We make sure that older employees as well as younger ones experience recognition and respect in their work.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We aim to achieve a co-operative leadership style in the company and make every effort to ensure that the employees are involved in major issues affecting their work and develop their own initiative.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
Our executives and workforce representatives have already examined the issue of "age and ageing workforces" in detail.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
We have developed corporate guidelines for an inter-generational HR policy.	<input type="checkbox"/> yes
	<input type="checkbox"/> no
Diversity concepts are discussed and promoted at our company.	<input type="checkbox"/> yes
	<input type="checkbox"/> no

Quick Check for a future-oriented HR policy

	Tends to apply	Tends not to apply
Your age structure consists of equal proportions of young, middle-aged and older employee.	<input type="checkbox"/>	<input type="checkbox"/>
The work activities are designed so that employees can perform them up to the age of 65.	<input type="checkbox"/>	<input type="checkbox"/>
The employees are actively involved in the design of their working conditions.	<input type="checkbox"/>	<input type="checkbox"/>
The company readily succeeds in training or recruiting enough young skilled workers.	<input type="checkbox"/>	<input type="checkbox"/>
All employees – also older ones – are given the opportunity to obtain qualifications and expand their competencies.	<input type="checkbox"/>	<input type="checkbox"/>
The exchange of knowledge between older, experienced employees and young workers is systematically promoted.	<input type="checkbox"/>	<input type="checkbox"/>
The prospect of career development is offered to all employees.	<input type="checkbox"/>	<input type="checkbox"/>

Quick Check of Gemeinschaftsinitiative Gesünder Arbeiten e.V. (GiGA), see www.gesuender-arbeiten.de

Source: Federal Institute for Occupational Safety and Health (Publ.) (2004): Mit Erfahrung die Zukunft meistern! Altern und Ältere in der Arbeitswelt, p. 27

Quick Checks with the online process

The Federation of Austrian Industrialists and the Austrian Chamber for Workers and Employees in Vienna as well as the Austria Trade Union Congress and Austrian Federal Economic Chamber have developed a self-check in a joint project entitled “arbeit & alter”:

► www.arbeitundalter.at

Another “Online Quick-Check zur Standortbestimmung im demographischen Wandel” was prepared as part of the New Quality of Work Initiative and is available on the Initiative’s website. This quick check offers the advantage that it is connected to a careful evaluation and interpretation help:

► www.inqa-demographie-check.de

1.3 Work Ability Index (WAI)

The Work Ability Index is a tool to record the work ability of employees. It originated in Finland and was developed as part of a research project (cf. Tuomi et al. 1995). It aims at identifying at an early stage health risks of the employees and risks of early retirement and counteracting them.

This tool also involves a questionnaire which serves to conduct a self-assessment. However, the focus here is not on the labour and HR policy but on the employees and their work ability assessed by themselves. Proceeding from the assessments of the employees, an examination is made as to whether restrictions on their work ability are imminent in the future and what need for action there is in order to promote the health of those surveyed over their working lives.

The questions are aimed at:

- the estimated current and future work ability;
- diagnosed illnesses and the number of absenteeism days in the previous year;
- the estimated sickness-related deterioration in the work performance;
- mental ability reserves.

The questionnaire can be completed by the employees themselves. However, the questions can also be answered with the help of others, for example works physicians during the works medical examination. In this case the works physician should use the WAI to discuss questions of health and staying healthy with the employees. They should consider together what the employees can do themselves and what the company can do to maintain and promote their work ability.

The WAI can be used for individual employees and groups of workers. However, it can also be applied as an analysis tool to the whole company or the whole workforce of a company. It offers the possibility of comparing individual departments or company sections as well as individual groups of employees and age groups according to their WAI values. In this way it becomes apparent for which employees or groups of workers occupational medical care is necessary. And company sections where health-oriented interventions should be given top priority can be determined.

Repeated use of the WAI provides information on how the work ability of those surveyed has developed and whether action taken to promote health has impacted on the employees involved.

The WAI has been used and tested on many occasions. Averages are available which were achieved with the WAI as reference figures, both for different occupational groups and age classes. These permit a comparison of the data obtained from many companies with those gained in one company. According to the results of an 11-year continuous Finnish study, the WAI has exhibited a high predictability for general disablement and mortality (Ilmarinen/Tempel 2003).

This tool is easy to use. The time involved for the questionnaire is between 10 and 15 minutes; 3 to 5 minutes are needed to evaluate each questionnaire.

As the WAI surveys sensitive data about illnesses and the estimated work ability of the employees, it is imperative that participation is voluntary. At the same time, it should not be used without the consent of the workers' representatives. Data protection must be strictly observed.

Work Ability Index

1. Current work ability compared with the lifetime best

Assume that your work ability at its best has a value of 10 points.
How many points would you give your current work ability?
(0 means that you cannot currently work at all)



2. Work ability in relation to the demands of the job

How do you rate your current work ability with respect to the **physical** demands of your work?

very good	5
rather good	4
amoderate	3
rather poor	2
very poor	1

How do you rate your current work ability with respect to the **mental** demands of your work?

very good	5
rather good	4
amoderate	3
rather poor	2
very poor	1

3. Number of current diseases diagnosed by a physician

In the following list, mark your diseases or injuries. Also indicate whether a physician has diagnosed or treated these diseases. For each disease, therefore, there can be 2, 1, or no alternatives circled.

	Yes, own opinion	Yes, physician's diagnosis
Injury from accidents		
01 back	2	1
02 arm/hand	2	1
03 leg/foot	2	1
04 other part of body, where and what kind of of injury?	2	1
...		
Musculoskeletal disease		
05 disorder of the upper back or cervical spine, repeated instances of pain	2	1
06 disorder of the lower back, repeated instances of pain	2	1
07 (sciatica) pain radiating from the back into the leg	2	1
08 Musculoskeletal disorder affecting the limbs (hands, feet), repeated instances of pain	2	1
09 rheumatoid arthritis	2	1
10 other musculoskeletal disorder, what?	2	1
...		

		Yes, own opinion	Yes, physician's diagnosis
Cardiovascular diseases			
11	hypertension (high blood pressure)	2	1
12	Coronary heart disease, chest pains during exercise (angina pectoris)	2	1
13	coronary thrombosis, myocardial infarction	2	1
14.	cardiac insufficiency	2	1
15	other cardiovascular disease, what?	2	1
...			
Respiratory disease			
16	repeated infections of the respiratory tract (also tonsillitis, acute sinusitis, acute bronchitis)	2	1
17	chronic bronchitis	2	1
18	chronic sinusitis	2	1
19	bronchial asthma	2	1
20	emphysema	2	1
21	pulmonary tuberculosis	2	1
22	other respiratory disease, what	2	1
...			
Mental disorder			
23	mental disease or severe mental health problem (for example, severe depression, mental disturbance)	2	1
24	slight mental disorder or problem (for example, slight depression, tension, anxiety, insomnia)	2	1
Neurological and sensory disease			
25	problems or injury to hearing	2	1
26	visual disease or injury (other than refractive error)	2	1
27	neurological disease (for example stroke, neuralgia, migraine, epilepsy)	2	1
28	other neurological or sensory disease, what?	2	1
...			
Digestive disease			
29	gall stones or disease	2	1
30	liver or pancreatic disease	2	1
31	gastric or duodenal ulcer	2	1
32	gastritis or duodenal irritation	2	1
33	colonic irritation, colitis	2	1
34	other digestive disease, what?	2	1
...			

	Yes, own opinion	Yes, physician's diagnosis
Genitourinary disease		
35 urinary tract infection	2	1
36 kidney disease	2	1
37 genitals disease (for example fallopian tube infection in women or prostatic infection in men)	2	1
38 Other genitourinary disease, what?	2	1
...		
Skin diseases		
39 allergic rash, eczema	2	1
40 other rash, what	2	1
...		
41 other skin disease, what?	2	1
...		
Tumour		
42 benign tumour	2	1
43 malignant tumour (cancer), where?	2	1
...		
Endocrine and metabolic diseases		
44 obesity	2	1
45 diabetes	2	1
46 goiter or others thyroid disease	2	1
47 other endocrine or metabolic disease, what?	2	1
...		
Blood diseases		
48 anemia	2	1
49 other blood disorder, what?	2	1
...		
Birth defects		
50 birth defect, what?	2	1
...		
Other disorder or disease		
51 What?	2	1
...		

4. Estimated work impairment due to diseases

Is your illness or injury a hindrance to your current job?

Circle more than one alternative if needed.

There is no hindrance/I have no diseases	6
I am able to do my job, but it causes some symptoms	5
I must sometimes slow down my work pace or change my work methods	4
I must often slow down my work pace or change my work methods	3
Because of my disease, I feel I am able to do only part-time work	2
In my opinion, I am entirely unable to work	1

5. Sick leave during the past year (12 months)

How many whole days have you been off work because of a health problem (disease or health care or for examination) during the past year (12 months)?

none at all	5
at the most 9 days	4
10 - 24 days	3
25 - 99 days	2
100 - 365 days	1

6. Own prognosis of work ability two years from now

Do you believe that – from the standpoint of your health – you will be able to do your current job **two years from now**?

unlikely	1
no certain	4
relatively certain	7

7. Mental resources

Have you recently been able to enjoy your regular daily activities?

often	4
rather often	3
sometimes	2
rather seldom	1
never	0

Have you recently been active and alert?

often	4
rather often	3
sometimes	2
rather seldom	1
never	0

Have you recently felt yourself to be full of hope for the future?

continuously	4
rather often	3
sometimes	2
rather seldom	1
never	0

Informed consent (promotion an maintenance of work ability in general)

Do you consent to let a summary of the preceding data and the score of your work ability index be included in your health records?

- Yes
- No

signature

How to evaluate

Completion of the questionnaire results in a figure or score which lies between 7 and 49. The figure describes the current work ability of the respondents and, at the same time, permits forecasts to be made of the health risk. A high value indicates a good work ability, a lower value an unsatisfactory or jeopardised work ability. Depending on the level of the figure, it is recommended either to maintain, support, improve or reinstate the work ability. Information on how to process and evaluate the questionnaire can be found in a brochure published by the Federal Institute of Occupational Safety and Health (vgl. Tuomi et al 1996).

Result	Category	Work ability action
2 – 27	“poor”	Reinstate work ability
28 – 36	“medium”	Improve work ability
37 – 43	“good”	Support work ability
44 – 49	“very good”	Maintain work ability

Source: Brochure of the project „Arbeitsfähigkeit 2010 – Was können wir tun, damit Sie gesund bleiben?“ (www.gesuender-arbeiten.de)

It must be noted when interpreting the results that the estimated work ability relates to the work performed by the employees with their respective physical and mental work demands. A store man with a low index who performs physically hard work and feels impaired owing to his back pains can nonetheless be very capable of meeting more cognitive demands in an office job. To this extent low WAI values do not indicate an individual deficiency but an incongruity between the work demands and the work capability of the employees.

Further notes

At the initiative of the Federal Institute for Occupational Safety and Health, a WAI network is currently being established in Germany (see www.arbeitsfaehigkeit.net). This network sees itself as a platform for active and potential users of this tool. On this website experience with the use of this tool is to be shared and a database created. The website also offers more information on the WAI and notes on its use.

Moreover, the Federal Institute for Occupational Safety and Health is currently preparing a short version of the above questionnaire. In this version individual illnesses will be questioned in less detail in the form of illness groups. The publication of this questionnaire and a new brochure “WAI Brochure” with the long version is planned for the first half of 2007.

1.4 Workshop concept

“Quality of Work – Healthy into Retirement”

Another analysis and planning tool is the organisation of a workshop focusing on the issue of “Age and Keeping Healthy”. Participants may be both skilled workers and executives as well as older workers.

Group discussions which are systematically organised and carefully evaluated can serve to:

- sensitise different groups of players and functions in the company to the “age issue”;
- reflect on connections between age, health and working conditions;
- ascertain difficulties which stand in the way of “healthy ageing” in the company;
- develop initial solutions for promoting the health and employability of older and ageing employees.

The organised exchange of experience between the different company players relevant to implementation aims, at the same time, at promoting their commitment and therefore creating a sound basis for action in the company to pursue health-oriented activities.

The concept “Quality of Work – Healthy into Retirement” represents a guideline on the organisation of such a workshop. It was developed and tried out as part of the European Community initiative EQUAL, sponsored by the Federal Ministry of Economics and Labour with funds from the European social fund (download at: www.inga.de; “Datenbank Gute Praxis” (Database of Good Practice). The tool is mainly suitable for use in large enterprises.

It consists of written instructions and a related set of charts. The workshop is divided into four blocks each of which pursues different sub-objectives. They can be used “en bloc” to structure a 1-day event or be treated as individual modules in shorter sessions. The contents and topics described are to be understood as ideas which can also be integrated into a company’s own, modified workshop concept. To hold the events, a moderator is required who has thoroughly looked into the topic of “age and health” and who has prepared and collated company-specific material in the run-up to the meetings.

Overview of the workshop structure

Opening and introduction	WELCOME	20 min.	
Block A	SENSITISATION	70 min. Plenum	1st part
The demographic change and its consequences in the company <ul style="list-style-type: none"> • Development of the age structure in Germany and in the company • Prospects of part-time work for those approaching pensionable age and early retirement • Relevance of ageing-appropriate job design 			
Block B	REFLECTION	90 min. Group work and plenum	2nd part
Work and ageing: What does that mean in my area of work? <ul style="list-style-type: none"> • Age, health and performance in concrete work situations • Discussion of the attitudes to “older employees” • Able to work up to retirement – is that possible? 			
Block C	ORIENTATION	60 min. Plenum	3rd part
In-house fields of action <ul style="list-style-type: none"> • Quality of work: Ageing-appropriate work and age-appropriate staff deployment • Fields of action in the company 			
Block D	DEVELOPMENT	120 min. Group work and plenum	4th part
Ideas workshop: Steps into practice <ul style="list-style-type: none"> • Development of ideas and action to improve the quality of work and the ageing-appropriate work design • What initiatives should be started? • First practical steps: Who begins when and where with the implementation? 			

Explanations on the individual modules of the workshop

■ Block A: Sensitisation

The first block involves collating and discussing fundamental data on the development of the age structure in the working population and in the respective company. It is illustrated that the demographic challenge relates above all to the future when the high-birth-rate years of the "baby-boomers" move up into the higher age groups. At the same time, changes in the statutory arrangements for early retirement and retirement age are discussed.

The importance of preventive multi-generational approaches for action which are targeted not only at today's older workers but which are aimed at a good "ageing process" in the company is to become clear using the background information.

■ Block B: Reflection

Block B deals with possible connections between the work ability and performance of older employees and the working conditions as well as the structure of work biographies. One key issue which is dealt with in small group work is: "What working conditions in the company imply that employees will not be able to work up to an age of 63 or 65?"

Moreover, possible prejudices concerning a basically lower professional performance of older workers are examined.

■ Block C: Orientation

Block C presents the broad spectrum of possible approaches for action of an ageing-appropriate labour and HR policy. This is based on a comprehensive understanding of workplace health promotion: health promotion which not only relates to workplace ergonomics and behaviour-oriented health prevention but also allows for the type of work organisation, the company's qualifications policy and staff development plans as well as the structure of the working hours.

It is then considered in what fields of action the company is already active and where a significant need and possibilities for action are seen above and beyond these.

■ Block D: Development

Block D represents an ideas workshop in order to develop initial ideas for ageing-appropriate work design, with the participants sharing their experience, and to plan concrete implementation stages. Here, individual change projects are worked out in small groups and then presented to the plenum and closely scrutinise them.

People are delegated with the responsibility for suggestions which are viewed as being important and expedient and the further procedure is discussed and a timetable planned.

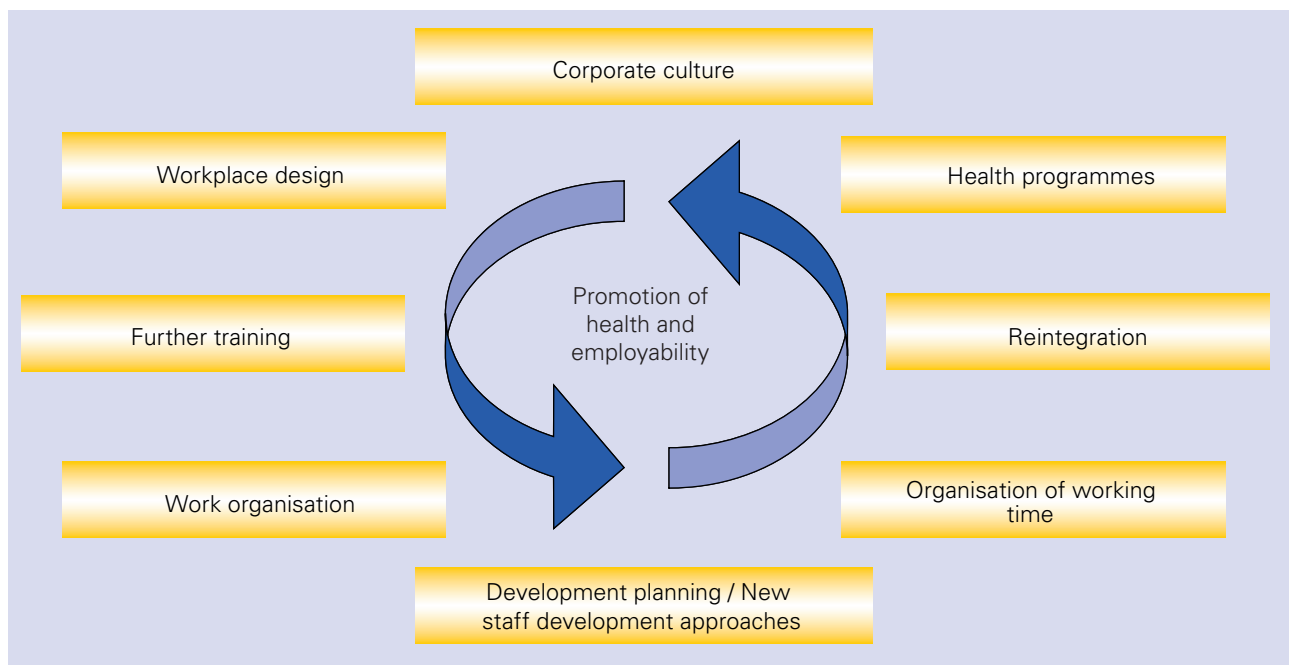
2. Models and action plans for an age-appropriate labour and HR policy

The following describes different action plans to promote the health and employability of older workers (cf. Table 8). They outline the possible range of action and not “only” involve the ergonomic design of the workplace and rather classic behaviour-oriented health programmes but equally further training and staff development, the organisation of the work and working time, reintegration of employees with diminished capabilities and the corporate culture.

Depending on the specific problems of the age structure, which become evident after an analysis of the starting situation, and on the company’s basis for action, the aim is to decide in what areas a company should primarily be active.

The approaches are not “clear-cut.” They tend to overlap and are interrelated. For example, changes in the work organisation can be related to previous further training programmes. Or the design of new staff development strategies might require a change in the organisation of the working time. The intermeshing of different action plans frequently represents a success factor for the implementation and sustainability of good practice.

Table 8: Action plans for an age-appropriate labour and HR policy



2.1 Workplace design

The ergonomic design of the *workplace* and *working environment*: This is a classic approach of occupational safety and health and a well-known requirement placed on the humane design of work. It should, if possible, already be considered in the planning stage of work systems.

The aim is to adapt the technology used, the space conditions at the workplace, the work equipment and the working environment to the physical performance conditions of people so that inappropriate workloads in the pursuance of work activities are avoided from the outset if at all possible. At the same time, *individual* physical peculiarities as well as health and constitutional limitations of the individual employees must be taken into consideration.

The ergonomic design of the workplace is particularly important for older workers as the efficiency of the senses as well as physical strength and speed decline with age. A new design of the workplace which reduces workloads and may be necessary for an older employee with health problems can, at the same time, be a health care measure for younger employees. The use of technical, strength-increasing work aids, for example, can help to prevent the physical overtaxing of older workers. And at the same time, such aids can also reduce the physical load situations of younger employees and therefore develop a preventive effect.

The reduction in ergonomic risk factors is of key importance in view of the still widespread physical workload situations in the industrial and service sectors. According to the results of a representative study conducted in 2004 by the "New Quality of Work" Initiative, 31.4% of the employees questioned in Germany indicated "at least one inappropriate

physical load situation" and 48.1% "several inappropriate physical load situations" in their work. 63.7% of those surveyed also mentioned stresses from the working environment (Fuchs 2006). According to this study, it is also typical of workers who believe they are unable to pursue their current activity until retirement age that they report to an extremely high degree of "generally heavy physical stresses during their previous work biographies" (Kistler et al. 2006).

The following catalogue contains a compilation of health-critical physical stresses, requirements placed on ergonomic workplace design and sensible adaptation action. It was developed by Waneen Spiriduso for American industry but can equally be applied to European companies.

Age-related physiological and psychological change	Adaptation of workplace and working environment
<p>1. Restricted movement of the joints, reduced elasticity of tendons and ligaments</p>	<p>Avoid jobs which require or already have: Activities with raised arms. Prolonged, unaccustomed body postures Twisted spinal columns Work with considerable bending of the hand joint to exert force using tools <i>Note:</i> Positioning of objects, control equipment, monitors to minimise prolonged twisting of the body, bending forwards and stooping The machine equipment is to be adapted to suit the individual body size: – in vehicles – in the office Design of the seats to reduce vibrations Low-frequency vibrations (trucks, construction machinery, building tools) Major strains of the hand joints when performing work</p>
<p>2. Reduction in strength</p>	<p>Avoid: Control equipment and tools which require great force Lifting, lowering, pushing, pulling and carrying loads Lifting loads > 20% of the maximum strength of a young worker Fast lifting Design workflows so that a load can be carried close to the body the task does not require any excessive bending, stooping or twisting the spinal column there are enough breaks between the individual work tasks a good stance and a stable position are possible <i>Note:</i> Correct instruction for the employees in Lifting and carrying</p>
<p>3. Reduced physical functional capacity</p>	<p>Note: Activities with an increased amount of energy should not exceed an oxygen consumption of 0.7 (men) or 0.5 (women) l/min</p>
<p>4. Reduced perception and decision-making capability Attention deficiencies Memory deficiencies Difficulties with mental implementation</p>	<p>Provide: longer training periods supplementary practice with written work instructions videos which show the work performance required increase in the signal-noise ratio at the workplace allocation of older workers to tasks where the work is performed with foresight rather than as a reaction tasks which require a good mixture of empirical knowledge and further training</p>
<p>5. Poor vision Focus Seeing colours (blue/green), poor vision</p>	<p>Provision of: 50% more lighting for employees between 40 and 55 years of age 100% more lighting for employees over 55 increased contrast on displays and measuring instruments larger writing and symbols on monitors and displays reduction in dazzle remove blue/green differentiation from the range of signals</p>
<p>6. Heat incompatibility</p>	<p>Prevent: overheating at the workplace</p>
<p>7. Less cold compatibility</p>	<p>Maintenance of: optimal workplace temperatures Introduction and use of clothing to protect against the cold</p>

Age-related physiological and psychological change	Adaptation of workplace and working environment
8. Poor hearing	Increase the: signal-noise ratio for tasks which contain signal-dependent instructions
9. Greater frequency of disorders of the lumbar vertebral column (low-back pain)	Provide: training programmes on prevention of low-back pains appropriate risks at work dissemination of basic knowledge on body reaction patterns special work instructions to prevent this design work activities so that back disorders are minimised prevention of complaints and injuries in leisure activities
10. Increased risk of falling and slipping	Elimination of: slippery work paths footstep markings on ramps adequate lighting of the workplace
11. Slower treatment (rehabilitation) for injuries and illnesses	Permit: <ul style="list-style-type: none"> – gradual return to full workload – rotation between light and heavy work to facilitate familiarisation with the work demands Provision of information material on sensible rehabilitation and return to work
12. Higher workload	Prevent working in a rush grant the employees the chance to check their workload <i>stress</i> work accuracy in contrast to working speed
13. Tendency towards inactivity	Provide: <ul style="list-style-type: none"> – an in-house and/or external fitness programme Encourage the employees to make use of this programme

Source: Ilmarinen/Tempel 2002

2.2 Health programmes

The purpose of an ergonomic design of the workplace and working environment is to create a health-promoting change in company structures and conditions. At the same time – as the other side of the coin so to speak – a health-conscious behaviour of every individual is important so that the employees remain efficient in the long term. Company health programmes with which healthy behaviour of the workers is to be promoted aim in this direction. Like measures relating to workplace ergonomics, they belong to the classic repertoire of corporate occupational safety and health.

Middle-aged and elderly workers of all people are an important target group in this respect: Physical complaints occur – on average – more frequently with them than among the younger workers and they tend to experience the limits of their own physical capabilities sooner. Therefore, from a certain age upwards employees are often more easily approached and they are more interested in “health issues” than when they were young.

Physical efficiency, as explained above, can be influenced to a large extent by a person’s individual lifestyle and working habits. For example, muscle strength can be trained just like the maximum intake of oxygen and can therefore reach a high level even in old age. Individual fitness training – fostered by company health programmes – can help to offset or counteract age-related physical degeneration processes (at least up to a retirement age of max. 67 years).

Company health programmes cover a wide range of different activities, which include:

- Regular checks of the state of the workers’ health (for example, occupational medical health check-ups and health care examinations);
- Training courses where employees are informed about how they can retain and promote their own physical efficiency – also outside the factor gate (for example, seminars on nutrition, stop-smoking programmes);
- “Wellness activities” (for example, a company fitness centre, factory sports, massages);
- Communication of coping strategies, i.e. strategies for coping with work requirements as productively as possible (for example, stress management, burnout prevention).

With such company programmes the personal resources of the employees can be strengthened to stay healthy. Moreover, programmes which support the workers in performing their work activities with less stress and less impact on their health make sense. Worth mentioning in this connection are, for example, training courses on “correct” sitting, working at a screen or lifting and carrying loads.

In order, for example, to prevent tension in the shoulders and neck in desk work, not only ergonomically designed office furniture is important. It must also be used to suit the body: The aim is to keep the back relaxed and straight, repeatedly change the sitting position (dynamic sitting), stand up now and again and move around, take regular breaks from working at a screen etc. As is well known, certain rules apply to lifting and carrying loads so as not to impact on health, such as “Carry loads as close as possible to the body,” “Never twist the torso when lifting” or “Always lift with both arms evenly in front of the body.”

Health-conscious behaviour at the workplace also comprises other aspects. For example, it includes orientation according to which technical lifting aids at the workplace are used as expansively as possible or help from colleagues is offered as a matter of course when handling loads. Health awareness is at its most effective as a “constant work companion” but it cannot be created throughout a company and not in the short term “at the press of a button”. Rather is it thwarted and superimposed by contrary individual

and company objectives (for example, maximum possible performance, highest possible pay).

Nevertheless, health-conscious behaviour can be promoted: For example, as part of health workshops or health circles. More emphasis can be placed on behaviour-related health risks and possibilities of a health-promoting lifestyle and work can be explained and examined together in talks with colleagues and in sharing experience.

► COMPANY EXAMPLE

Urban public transport of the city of Munich/Germany: Stress management and fitness training for older drivers

The health programme of the Munich transport enterprises, which was already initiated in 1993, was aimed at reducing the high rates of driving incapacity and absenteeism of the drivers and increase the time they stayed with the transport companies. It comprised 20 health days at intervals of 12 days in a so-called “health park” of the Munich adult education centre during working hours on full pay. Every year 96 drivers who had reached a high age or had given long service to the company were selected to attend.

Key modules of the health days were:

- Training of physical capacity and stamina;
- Mental techniques to reduce timetable stress;
- “Anti-irritation” training, for example with regard to unpleasant passengers, in role games and sharing experience;
- Self-experience units and trance exercises to promote relaxation.

An evaluation of the programme over four years showed, among other things, a clear improvement in the health and well-being of the participants as well as a reduction in absenteeism and rates of driving incapacity.

In 2003 the programme was extended to include other employees of the transport enterprises. 20 health days are still being organised for each of the participating groups but 25% of the time is no longer regarded as working time. The focus of the activities has shifted from the psychosocial units to the physical exercises, movement and training.

Source: Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, 2004

2.3 Further training

Intensive, job-flanking further training is regarded as one of the most promising strategies to promote the work ability and employability of workers. As far back as in 1999 and 2000 the EU Commission demanded the member states to take action on constant qualification in line with a policy of “active ageing” in view of the demographic change.

The employment rates both of the 25 to 44-year-olds and those of the 55 to 64-year-olds, both men and women, are sharply increasing in all former 15 member states of the European Union in line with their level of qualifications. At the same time, those who have better qualifications have better chances to find a job and remain employed even after their 55th birthday (Bosch/Schief 2005).

In companies the deployment possibilities for the workers are expanding and increasing the more comprehensive their know-how is. In fields of activity which tend to demand mental rather than physical effort it is possible to still work even in old age. At the same time, qualifications protect against becoming overstretched in that cognitive requirements can be coped with more easily and without any stress. They therefore serve to maintain health directly and represent an important health resource.

However, knowledge becomes obsolete increasingly faster in our “knowledge society”. Technical change happens at an accelerated rate and the demands on qualifications and innovative skills are constantly rising. The knowledge acquired in initial training remains relevant and sufficient for the job in question for an ever shorter time span. Therefore, it will become ever more important to continuously keep one’s own competencies in line with the developments taking place in the relevant occupation and company.

Further training programmes can serve to:

- keep the professional, methodical and social know-how necessary for the work activities performed up to date (maintaining qualifications),
- be able to satisfy changed requirements in one’s own field of work (adaptation qualifications),
- be able to pursue new work activities (future qualifications).

According to the results of studies, the participation rates of older workers in formally organised further training programmes decreases with age, but not so much as is often assumed. People with higher qualifications not only use the opportunity in younger years but also after their 45th birthday of continuing to learn and refreshing their qualifications (cf. Expert Commission “Financing Lifelong Learning” 2004, p. 116). On the other hand, semi-skilled and unskilled workers in particular and also executive employees who have gained few qualifications at a young age and even less when older.

However, today’s older workers in some cases have specific knowledge gaps and a need to catch up in the field of EDP and IT. Therefore, targeted training courses, for example on the standard applications on a PC, Internet and e-mail, CAD or SAP, are important for older workers so that they are not left behind by or can catch up again with today’s technological standards. Here it appears expedient to hold such courses for experienced workers in particular. If further training takes place in standard courses where both young and old come together, a loss of motivation and a feeling of failure can very quickly arise if learning progresses more quickly.

Otherwise special company programmes are not absolutely necessary for older employees to obtain

qualifications. The aim is rather to address them just as younger employees with regard to further training programmes and include them equally in courses and seminars on offer. The guideline would therefore be an *age-independent* company qualifications policy *for all ages*. However, further training programmes only bear fruit if what is learned can also be subsequently introduced into the employees' work, i.e. if it is of benefit to their further career.

Special qualifications concepts and programmes are not in general necessary for "older" workers but for employees not accustomed to learning. If employees are not accustomed in their everyday

working lives to facing new challenges, they have, as experience shows, major difficulties in coping again with learning situations. In such cases it is expedient to hold special further training courses for this group of workers where they are re-introduced to learning and where learning picks up from their individual level of knowledge. As less qualified people frequently work in fields with particularly high physical or mental stresses and as jobs with low qualification requirements are being increasingly shed in companies, special qualification offers are particularly important for the target group of those unaccustomed to learning.

► COMPANY EXAMPLE

Kaco/Germany: Qualification of semi-skilled assembly workers to become "parts finishers"

Kaco is a parts supplier with approx. 500 employees, 40% of whom are women. The classic jobs of unskilled and semi-skilled workers in the assembly shop were severely cut back as part of the company restructuring process and the qualifications requirements for the remaining work increased substantially: Instead of manual parts handling priority nowadays is plant monitoring, fault elimination and quality assurance.

"Further training instead of dismissal"; under this motto the company is searching *with* the workers for new approaches to overcome the change in requirements. For ten years semi-skilled assembly workers have been qualified to skilled workers, i.e. "parts finishers", alongside their jobs. The special aspect: long-serving employees, for example a 52-year-old, are participating.

The course, last completed in 2004, was part of a model project sponsored by state and EU funds. The subsidies paid for the direct training costs. The qualification programme lasted 15 months and ended in an examination before the Chamber of Industry and Commerce.

The participants were on average released for 60 to 70% of their working time to learn. As they remained working in their jobs for the remaining time, they were able to maintain the connection to their work and their colleagues. Almost the entire training programme was held in the works, including the theoretical lessons.

"Back to school again" was initially very tedious and strenuous for the workers. Learning had to be learned again. What was important for these involved was that they were encouraged and supported by those responsible for human resources and the works council.

All participants passed the examination. Many continue their usual activity after further training but on the basis of their new knowledge with more contextual understanding and with better quality results. Others have assumed additional new work such as control and maintenance activities and, as a result, learning in the work process continues. Moreover, the certificate acquired is regarded as an entrance ticket to higher positions in the company as soon as appropriate positions have to be filled.

In retrospect, almost all participants – in spite of initial scepticism – are proud that they underwent further training. And, in the experience of those responsible for human resources, they have gained a lot more confidence and self-awareness. The company in turn has gained qualified workers and it did something to safeguard its need for skilled workers in the future.

It is of key importance, not only but particularly with regard to older workers and those unaccustomed to learning, to design further training programmes to suit the adult audience and the type of participants. The following description by Markus Stöckl from the Institute of Technology and Education of Bremen university shows what has to be noted.

Source: Morschhäuser 2005 b

Age-appropriate didactics – Guidelines

■ Include the participants in the design of the courses and material!

According to the perception of adult education which sees the independence of its participants as a precondition, approach and objective, the older people learning should be included as co-designers of educational programmes.

■ Break down prejudices against the ability to learn and the efficiency of older workers!

Prejudices about the ability to learn and the efficiency of older workers frequently lead to motivational barriers and obstacles to learning owing to a lack of self-confidence in their own ability to learn. Prejudices such as “You can’t teach an old dog new tricks” must therefore be discussed in the courses and eliminated by scientifically backed counter-arguments.

■ Use activating methods of learning and teaching!

Activating methods of learning and teaching should be used more in the qualification programmes. Classic teacher-oriented lessons must be avoided if possible as too strong a control by the teacher and the associated role of pupils are frequently perceived as disturbing by older adults.

■ Communicate learning strategies!

Older workers unaccustomed to learning must frequently first learn to learn. The teaching of material may have to be reduced to communicating methodological skills (learning strategies), i.e. learning methods must be expressly related to the subject matter of the qualification course.

■ Guarantee personal advice and support!

Older workers would like more personal advice and support when learning. Therefore, “team teaching” is to be recommended to the course organisers. The number of participants should not exceed six to eight people per teacher.

■ Incorporate prior knowledge of the participants!

Prior knowledge plays a crucial role in learning. Therefore, access to the learning material should be made easier for older workers by creating analogies and using examples of what they already know. ➤

■ Communicate connections, structure learning material and reduce complexity!

It has proved necessary with older workers, particularly at the start of qualification programmes, for knowledge to be communicated to them in an overall context, for a well organised break-down and good structuring of the teaching material to be provided and for complexity of the material to be reduced.

Use learning tasks close to reality!

The following aspects must be taken into account in the age-appropriate design of tasks:

- Tasks which closely reflect reality and have a strong connection to life and/or the world of work of the older workers should be used.
- In principle, in designing the tasks, making things too easy or too difficult should be avoided.

A broad range of tasks of varying complexity must be offered and adapted to suit the needs of each older participant.

- Every single task should be structured like a complete work order. Subsequent tasks should contain, as much as possible, the requirements previously set and, in addition, new requirements.

Source: Bertelsmann Stiftung/ Bundesvereinigung der Deutschen Arbeitgeberverbände 2003

2.4 Work organisation

In order to boost the qualifications of employees, there is not only a need for formal, institutionalised further training courses. On the contrary, the work itself must be designed to promote learning. The “integration of work and learning” is required.

“Informal learning” can only take place when the work tasks to be performed by the employees repeatedly involve new challenges; *learning in the process of working*. This form of qualification is the most widespread and most important way for most employees to continue to learn in their working lives (Baethge/Baethge-Kinsky 2004). In a direct examination of the work requirements, by observing and trying things out, and also by reading and talking with colleagues, knowledge and skills are introduced into the work and, at the same time, developed further.

Contrary to the general trend of rising demands on qualifications in the industrial and service sectors, there is still, according to analyses available, a considerable amount of routine activity which will remain for the foreseeable future. The problem is that monotonous work goes hand in hand with high or one-sided physical strains. If employees perform work activities over a prolonged period where there is little or nothing to learn, qualifications which originally existed are lost. No new knowledge and skills are acquired and deployment possibilities of the employees increasingly diminish over time. Moreover, learning itself is forgotten and those affected lose confidence in their own learning ability. In this connection this is also referred to as “wear through routine”.

However, highly qualified employees are not protected against de-qualification owing to one-sided activities. This risk exists when skilled workers advance during their careers to specialists for very specialised products or processes which are only produced or used for a limited period. If their work focuses on the performance of such specific work over a long time, they lose sight of current developments in their profession and they can no longer understand them. This results in deficits in the latest expertise and skills relevant to their profession while their special competence will at some time no longer be in demand.

It is by no means rare for employees to perform the same work in companies for a long period of time. Workers with low qualifications in particular often remain in the jobs for which they were employed for many years. As long as employees can cope with the work they perform, there appears to be no reason to deploy them elsewhere. Company staff deployment patterns are generally geared to short-term efficiency criteria. In many cases they adhere to the motto, which does not exactly promote learning: "Everyone does what he can do best and fastest". Familiarisation, further training and familiarisation

periods are initially saved in this way. And often the workers themselves are frightened of new demands and want to keep to their routines.

By contrast, in order to promote qualifications, health and employability in a more long-term perspective, it is recommended for employees of all age groups to repeatedly familiarise themselves with new work activities.

In this connection the question of how work is organised and how work activities are distributed to the employees is of key importance. For example, new skills and abilities can be developed at work, the learning ability maintained and the range of deployment of the workers increased through *a change in activity, varied work or job enrichment*. The change in stress ensuing from a variety of activities and demands can, at the same time, serve to maintain health.

However, the aim must be to find a "happy medium" when changing work activities. High demands on flexibility, the transfer of many and different work tasks ("multitasking"), can also lead to overstretching and stress.

► COMPANY EXAMPLE

3M/Germany: Job rotation

The American company 3M (Minnesota Mining & Manufacturing Company) has specialised in joining and insulation, for example, grinding agents, adhesives and films. In 1951, 3M Deutschland was founded with its head office in Neuss. Of the total of more than 3,000 employees over 50% work in production and storage functions.

3M is one of a few of companies which offers job rotation for the entire company as a tool for continuous staff development. After about 2-4 years a worker changes from one position to another. The rotation programmes are used both for career planning and for the acquisition of new qualifications in the industrial sector. The job change may also involve a different location in the international company.

Another possibility to promote variety and learning at work is provided by *group work*. This form of staff deployment extends the possible range of activities for the individual and different tasks can be performed alternately in the team. Prolonged, one-sided strains are avoided, new knowledge and skills are acquired, and flexibility and learning ability are trained. At the same time, group work offers improved possibilities to learn from colleagues and support one another. If “the chemistry” is right between the group members, social cohesion and support contribute to the physical and mental health of the individual.

However, this form of work organisation often involves specialisations and one-sided work of group members. The possibilities for developing competencies are often not exploited. And group work can also contribute to the exclusion – instead of integration – of older, less efficient employees.

Group work does not develop automatically in an age-appropriate direction. To this end it must be carefully

planned and organised. Key factors in this are, for example:

- the composition of the group tasks (as varied a range of tasks as possible, existence of light work);
- the composition of the team (balanced proportion of employees with health disorders or with diminished capabilities in the group, social stability);
- time latitude or defined times for qualification processes and group talks;
- regulation of pay and performance beneficial to learning and health (rewarding flexibility, allowing for qualification times in staff assessment);
- an atmosphere of acceptance and reciprocal support in the groups.

When well organised, group work opens up latitude to take into account the different potential and individual preferences of the individual group members and a possibly lower resilience of older workers through an appropriate distribution of the tasks.

2.5 Development planning and new staff development approaches

In view of a longer working life in future the demand for continuous career development planning is gaining in significance. Nowadays, the aim is not only for working people in their younger years to thoroughly consider before choosing a profession what they “will become”, what training they undergo and what career direction they want to adopt. The requirement to plan and actively shape a career future is also arising increasingly among the middle-aged and older workers. To maintain employability, it is important, especially for workers after a longer period of employment, to repeatedly consider and reflect where

they stand in their careers and what further development steps should be taken.

Companies can support the personal development planning of their employees with the use of special tools and processes. These can, for example, be in the form of *staff appraisal talks* which are today already practised in companies, for example under headings like “development”, “orientation” or “talks about the future”. They serve both to determine the qualification level of the workers and their qualification and development interests as well as to plan career changes.

The way in which the talks are held is key to their success. Good preparation is essential for this. In larger companies it is advisable to develop preparation talk guidelines for those who are to conduct such talks (the supervisors as a rule) and for the employees. Moreover, it may be expedient to train the supervisors in advance in dialogue-based communication and in holding talks (especially if they are younger than the people they are talking to). Furthermore, on the introduction of development talks, it is recommended to agree on a pilot phase and form a project group. It establishes jointly the topics of discussion and the procedure for the talks, evaluates initial experience and, if necessary, revises the concept.

One important aspect of the talks is to help the employees to question their career situations, identify their potential and need for further training and to articulate and concretise their ideas on their further careers.

Another but more complicated procedure to support a personal development plan is the provision of *workshops on career assessment*. A number of companies, especially major concerns, specifically offer the over-40s the chance to attend such events. They are generally held externally over two or three days and have a professional moderator. Occupational strengths and weakness of the participants are examined in an exchange of experience with colleagues of the same age group. The professional career and the current work situation are examined, development prospects are worked out and career moves planned. The focus here is on what the employees can do themselves to fashion their own career situation to be more interesting or less stressful and "more healthy".

► COMPANY EXAMPLE

Migros/Switzerland: The Midlife Power Programme

Migros-Genossenschafts-Bund is a service company of the largest retail chain in Switzerland. Here the "Midlife Power Programme" was developed to target the age group of the 45-50s. The programme aims at counteracting inner resignation of long-serving employees and supporting them to see where they stand professionally and, if necessary, set themselves new targets in the second half of their careers.

The heart of the Midlife Power Programme is a series of workshops which have an external moderator and, in some cases, are held outside the company. The costs are borne by the company and the participants are released from work. Professionally coached and in intensive exchanges of experience with people of the same age, the individual's skills are determined, the past career analysed and development possibilities in the relevant job and occupation sounded out. According to statements of some participants, the workshops have a triggering function. "Many ideas are already there beforehand," according to one female employee, "but somehow they couldn't be implemented and really tackled." The change steps of the employees head in many directions: further training programmes, a change of position, new focal points set in the previous job, and steps forward towards an improved work-life balance. ►

One important factor for the success of the programme is that those responsible for HR and executives subsequently support the employees with the exchange projects they develop in the seminars. And another precondition is that the company actually offers career development possibilities. Here, Migros, the largest Group, offers a comparatively wide variety of occupational further training and change opportunities.

Source: Morschhäuser 2005b

Personal development planning can only be successful if, at the same time, there are development possibilities and offers in the company. The ideal way to age in working life with qualifications and in a healthy way is to have a career. According to Behrens (1999), these “requirements, incentives and stresses order themselves in a work biography in such a way that a working life can be frequently achieved up to the statutory age of retirement – even if the individual activity can only be performed in a limited period.” This very approach is only open to middle-aged workers today to a very limited extent: While the proportion of 35-to-50-year-olds in the working population has sharply increased in recent years, the hierarchies in the companies have, at the same time, become flatter as a consequence of new company organisation concepts. The “middle-aged” therefore do not have the premature departure or the career promotion options of today’s older generation.

In view of this situation *new staff development approaches* are required in the shape of *horizontal career design and specialised careers* (Morschhäuser 2006). The focus here is on the long-term shaping of work biographies whereas the “work organisation which promotes learning” tended to be an ageing-appropriate allocation of tasks and staff deployment planning in a “here and now” approach.

New staff development concepts are required especially for employees who perform physically or mentally hard work which can only be carried out, as

experience shows, for a “limited period of the activity” but not until retirement without major health risks. With regard to particularly hard and strenuous work, it may also be advisable and expedient to agree from the outset on a *limited staying time* for those who work under such conditions and to subsequently offer them new deployment chances in the company.

The systematic planning of new staff development approaches can, for example, involve employees changing from one field of work in a company to another (for example from assembly to logistics). It is equally possible to offer specific specialisation in the regular field of work (e.g. development of skilled carers into specialists for the treatment of bed sores or for caring for people with dementia). Temporary projects, long-term rotation concepts or temporary deployment in a new field of work offer career development possibilities for the employees.

For older employees it is recommended to increasingly provide and develop such fields of activity where they can introduce and develop their experience and the skills they have acquired during their working lives. The following can be considered, for example as new and sensible “work roles” for employees with many years of work experience: quality assurance, maintenance, servicing, customer contact or the transfer of knowledge.

If older workers are selectively deployed to transfer their knowledge and skills systematically to younger employees – for example in the form of so-called “tandems”, “coaches” or “mentoring models” – this strategy meets several HR challenges at the same time: New development prospects arise for the older workers while, at the same time, the transfer

of know-how between the generations is ensured. However, one precondition is that the learning process between young and old is well planned and organised (e.g. clear agreements on leaving the job and on the further employment of the older workers, time resources, recognition, possibly also financial rewards for the transfer activity).

Examples of fields of activity for which workers should have reached a certain age

Fields of work to exploit the potential of healthy and efficient older workers:

- Managerial functions as they require work experience, a knowledge of company circumstances, experience of life, assertiveness, awareness of responsibility and social skills
- Trainer, teacher, coach, mentor and the like – also for the continuous or temporary familiarisation of younger workers or new recruits
- Being able to negotiate with customers, suppliers, business associates in procurement and sales owing to better acceptance and appropriate presentation outside the company
- Accounting activity, secretarial work, cash register activity, documentation activities, controlling activities, activities as part of quality management and other activities where the focus is on trustworthiness, accuracy and reliability
- Activities for organising complex workflows involving a high degree of social and organisational co-ordination, e.g. the management of complex projects
- Co-ordination activities which necessitate empirical knowledge in the form of knowledge of company workflows and skills of employees

Source: Köchling 2002

2.6 Organisation of working time

The organisation of working time involves a multi-layer action plan: This relates to both the location and duration of the working time and its distribution, related to the single working day and over the entire working life. For example, too highly compacted working time as well as shift work, especially prolonged and frequent night shifts, are “critical” to health and age.

Approaches for organising healthy breaks and shift work are discussed in the following. Subsequently, models of long-term flexible working time organisation are dealt with against the backdrop of a longer working life in the future.

In order to adapt the work demands to the capabilities of older workers, the *design of breaks* deserves special attention. The following applies as a guiding rule according to the relevant Codes of Practice: If the relaxation times follow in short intervals and therefore the cycles of work-related stress become shorter, their relaxation value increases (Oppolzer 2006). It has also been proven that older workers need more breaks than younger workers in order to recover from the stresses of work. The more strenuous the work is in the physical or mental respect, the greater the need will be for scattered break times. Even micro-breaks of only one or a few minutes have an important recovery effect.

The crucial aspect for the effectiveness of breaks is that they follow as quickly as possible after heavy physical work or particularly pronounced stress phases. Too early breaks help little to cope with work whereas too late breaks equally lose effectiveness (Ilmarinen/Tempel 2002). It applies in general that the staff deployment, especially as regards older workers, should be regulated, if at all possible, so

that they can complete their workload in accordance with their individual time rhythm.

As regards the timing of the working hours, *working night shifts* above all involves increased health risks. Man is by nature active by day: During the day the organism is set for exertion and performance, at night it is geared to relaxation and quiet. This biological rhythm, also called the “Circadian rhythm,” cannot be reversed. Anyone who has to work at night, demands energy from his body for the increased adaptation effort in addition to the actual work – in the long term a considerable strain on the body. Employees who work in night and alternating shifts suffer more often from sleeplessness, internal unrest, nervousness, depression, illnesses of the stomach/intestinal tract and cardiovascular diseases. Moreover, the risk of an accident is higher during night and shift work.

According to studies available, it is even more difficult for older workers than younger ones to adapt to an “unnatural” sleep/awake rhythm. Shift workers who are over 40 years of age have an increased risk of sleeplessness and they are affected more frequently than younger workers by coronary heart diseases and depression (Ilmarinen/Tempel 2002).

It would be best, in order to promote health, to limit the amount of shift work and reduce it to a necessary minimum. This can, for example, mean offering workers from a certain age onwards or after a certain time of working at nights to change back to a normal shift and therefore limit the duration of stress effects of shift work.

Recommendations on the organisation of shift work

- The number of consecutive night shifts should be as low as possible.
- A phase of night shifts should be followed by as long a period of rest as possible. It should under no circumstances be less than 24 hours.
- Weekend free time en bloc is better than single free days at the weekend.
- Shift workers should have as much free time as compensation as possible.
- Unfavourable shift sequences should be avoided, i.e. always rotating forwards.
- The early shift should not start too early.
- The night shift should end as early as possible.
- Rigid starting times should be dispensed with in favour of individual preferences.
- The concentration of working days or working times on one day should be restricted

If shift work and above all night shift work is unavoidable, the task is to regulate the shift rhythm and the shift sequences to minimise the impact on health. From a work scientific point of view, short rotating shift changes and as low a number of interspersed night shifts as possible appear advisable. However, in organising shift work, individual preferences of the workers must also be taken into account; after all, they also govern their well-being and health. There is no generally applicable, ideal shift plan but every specific shift organisation must allow for both company and individual interests.

Source: Beermann 1997

► COMPANY EXAMPLE

Polyfelt/Austria: From four to five-shift operations

Polyfelt is a geotextile producer with production sites in Austria, France and Malaysia. Production in Linz was changed from four to five-shift operations in 2000.

The new shift model is based on a 35-hour week with a “regularly irregular” shift rhythm which repeats itself every five weeks. In addition to longer recovery periods from three to four days between the shift blocks and a reduction in the night shifts from eight to six per month, the weekend free time is also substantially increased. As a result, the employees have on average at least every third weekend free and in this way family-friendliness was improved in shift operations. This shift rhythm greatly helps older workers in particular.

According to the results of an evaluation after four years, the shift workers report of:

- a tremendous improvement in the quality of life,
- more work being completed,
- an improvement in the quality of work,
- a reduction in stress,
- a higher subjective level of health,
- an improvement in regeneration due to a better quality of sleep and family-friendly working hours, resulting in a rise in staff satisfaction.

Source: www.arbeitundalter.at

Other possibilities for reducing stress involve shortening the working time. In this way the duration of stress effects is reduced while, at the same time, more time remains for regeneration. A highly demanding activity where older workers, employed full-time, reach their limits can be overcome by them within a shorter time span, if necessary, without overtaxing them.

Models of working time reduction and flexibilisation may relate to the single working day, the week, the year or even the entire working life, especially from demographic viewpoints. The concept of *flexible retirement* is aimed at the last phase of working life: According to this model, from a certain age, which can be established individually and flexibly, the working time is shortened in stages thus ensuring a slow transition into the post-employment phase (Bäcker/Naegele 1993).

Changing from full-time work to retirement can take place over one or several part-time steps. The amount of work to be performed can be established individually within a range of possible working time reductions in line with the expected performance and preferences of the individual older workers. A premature deterioration in health can be avoided in this way. Moreover, the workers can use the free time they have gained in the later employment phase to prepare themselves for the period after employment and so prevent a potential crisis of doubt after an abrupt end to the employment activity. In this connection the introduction of *long-time accounts* can be used to save up working time in the long term in order to “exchange” it in old age for a successive reduction in working time.

However, in view of a longer period of gainful employment in the future, it may also be advisable and expedient to shorten the working time in phases especially for younger and middle-aged workers, or introduce sabbaticals over the working life. This may, for example, help the employees to acquire new occupational skills or qualify themselves for future career tasks – for example in connection with “specialised careers”. They can also be used to pursue more activities outside work, which is especially pronounced among younger and middle-aged workers and which cannot be postponed – for example time for the family – to the phase of life after employment. Finally, “time-out” can also provide effective regeneration from the exertions of everyday working life and promote health. The aim is “decompaction” of the working time in a working life, which offers improved opportunities to achieve a balance between working and living (“work-life balance”).

In conclusion, it can be stated that an all-embracing and generalised life working time concept can satisfy the variety of career patterns just as little as conditions specific to professions and activities. Therefore, as many varied options and design possibilities as possible are to be recommended in the sense of “selected working time models” according to which workers can establish their work volume and its distribution individually according to the phase of life – allowing for the company’s needs.

2.7 Reintegration

As workers get older, the level of sickness-related absenteeism and days lost due to illness – taken as an average – rise considerably. This increase is mainly attributable to a rise in chronic illnesses (musculoskeletal diseases, cardiovascular diseases) which may start to evolve in younger years but do not manifest themselves until later in life.

At the same time, the proportion of so-called workers “with diminished capabilities” or “with an occupational disability”; i.e. workers with restrictions on their deployment certified by a doctor, rises in many companies considerably as they get older. This applies in particular to fields of work involving high physical or mental workloads.

Bearing in mind all the initiatives of preventive workplace health promotion, it must be assumed that in the future many older workers will admittedly be in a position to pursue gainful employment but not necessarily with the usual work and performance demands. In addition to preventive strategies, there is therefore a need for integrative programmes and new concepts of reintegration in order to safeguard the employment of workers with health or constitutional limitations in their range of deployment or to make it possible again.

This applies all the more so when fields of work with reduced workloads, which formerly served as niches or “easy jobs” to deploy older workers less able to cope with stress, have disappeared in the wake of outsourcing and streamlining. In many cases the demands on qualifications and performance at the relevant workplaces have also risen considerably. As a result, the rug has been pulled from under formerly

common staff deployment strategies in many cases where allowance was made for the change in performance of older workers.

In order to reintegrate workers after an illness and prolonged absence back into the work process, medical rehabilitation programmes can play an important role in direct co-ordination between clinics and the company. Stress and work trials as well as gradual reintegration can facilitate the return of sick employees back to their workplace.

If continued employment in the previous job is not possible – even using technical aids and making modifications –, the question arises regarding new deployment prospects for those affected. When looking for a suitable job, not only should the limitations of the workers be allowed for but also their skills and potential. The question is therefore not only what the person affected cannot do (any more) but also what the person *can* do and what they *could* do – possibly after gaining qualifications – (from “deficit” to “competence orientation”). New deployment possibilities, as the case example shows, may also be opened up through organisational changes and a redefinition of the work tasks.

► COMPANY EXAMPLE

Volkswagen/Germany: The cascade model

If workers can only be deployed to a limited extent owing to health disorders, the automobile company Volkswagen Nutzfahrzeuge initially looks for approaches to continue to employ them in their job and in their long-standing work group – possibly with technical or organisational changes. If this is no longer possible, the “cascade model” comes into action: In a systematic process the foreman and then the sub-section manager, the departmental manager and finally the cost centre manager each examine the possibilities in their areas of responsibility to employ the person in question in line with their skills. This takes place in co-operation with the HR service centre and the occupational safety and health department.

Contrary to general custom, a new attitude is adopted when examining deployment: If it is determined in works physician's certificates what an employee can no longer do, a resource-oriented approach is applied to ascertain what the person can do and what previously untapped potential is available.

If no suitable job is found for the person affected in this gradual search process, deployment in the “IntegrationWorks” is considered, which was created in early 2003. This is not a separate department. Rather activities in the field of factory maintenance were defined which can, in principle, be performed by workers with serious health limitations, including for example checking and maintenance work, “repair and maintenance assistance”, ordering and registration activities, painting and joinery work. In organisational terms these activities were assigned to the newly created cost centre “IntegrationWorks”.

In some cases the work tasks were redefined in the department and distributed. For example, the control room activity for checking the plant status of the shell, previously the work of a highly qualified maintenance worker, can also be performed by experienced “shell workers” with health impairments; as a result, the specialists gained more time for the on-site repair work.

The activities in the “IntegrationWorks” are, by and large, highly regarded and produce value added. Any possible stigmatisation owing to the assignment of inferior work or to the separate location is avoided. Moreover, reduced working time of 30 hours per week was agreed to reduce stress for the IntegrationWorks. Health activities agreed on with each individual employee as a physical rehabilitation programme are pursued at the same time.

The overriding aim is reintegration. Employment in the IntegrationWorks is always temporary. The main objective is to reinstate the work ability of the employees so much that they can return to the production sectors – if necessary supported by offers to obtain higher qualifications.

Source: Bertelsmann-Stiftung/ Bundesvereinigung der Deutschen Arbeitgeberverbände 2003

Standardised procedures are available to match the ability profile of individual employees with the requirement profile of jobs (in their current form). For example, the tool IMBA (integration of people with disabilities in the world of work) which was developed on behalf of the Federal Ministry of Health and Social Security in Germany and is also available

in English (see www.imba-software.de). They can be helpful especially for large companies to identify suitable jobs for workers with limitations on their deployment and to avoid the risk of deploying the wrong person for the job.

2.8 Corporate culture

One important prerequisite and general condition for an HR (development) policy which no longer places priority on young workers but older workers to an equal extent and which is geared to healthy and productive ageing in the work process is a respectful corporate culture. This involves values, standards and behaviour patterns in the company which are geared to *diversity* and, in general, to recognition and the promotion of the individual workers – regardless of whether young or old, German or foreign, male or female, handicapped or not. This contains a prejudice-free estimation of the capabilities of women, migrants, the disabled and the elderly.

Long-term strategies to promote employability proceed from open, dialogue-oriented behaviour in the company which is characterised by:

- a collegial and supportive atmosphere at the workplace;
- a credible and participation-oriented leadership style;
- basic openness of those responsible for HR to employees' suggestions for improvement;

- a willingness to take action in a flexible and individual fashion;
- sensitivity towards discrimination and assertive counteraction;
- fostering the workers' initiative and personal responsibility, which presupposes appropriate possibilities of the individual to take decisions and have an influence.

The key element of a "respectful corporate culture" is good and co-operative management behaviour. The behaviour of the direct supervisors has a crucial impact on the job satisfaction and work ability of employees. The fact that in the fields of management and corporate culture there is a need for improvement in many companies is highlighted by a survey dating from the 1990s: According to this, between 40% and 50% of the workers in the European Union – depending on age and gender – had not discussed any work-related problems with their supervisors in the preceding 12 months (cf. Ilmarinen/Tempel 2002).

The requirements placed on the management behaviour towards ageing employees can be broken down into:

Attitudes

Negative/positive
One's own/others' assessment

Forms of co-operation

Hierarchical/team-oriented
Own participation
Support
Willingness to discuss
Free of prejudices and open

Organisation of the workflows

Static/dynamic
Changing use of strength
Individual solutions

Communication skills

Information on forthcoming changes

Company approaches and tools to promote an age-appropriate corporate culture and a supportive behaviour of the supervisors are, for example:

- Development of corporate guidelines for an age-appropriate labour and HR policy covering all generations;
- Workshops with supervisors to examine age stereotypes and to reflect on one's own policies and behavioural patterns towards young and old;
- Staff surveys on supervisors' behaviour and feedback from executives.

► COMPANY EXAMPLE

Halifax/Great Britain: Age diversity

The British insurance company, Halifax, started over 20 years ago to implement an equal opportunities policy. The issue of age diversity has been an integral part of this since 1995. In addition to integrative orientation as a corporate objective, the aim expressly stated is to achieve competitive advantages with regard to the labour market and the customers' perception of the company in this way.

The specific objectives not only include eliminating the age barriers in the company (including the previous retirement limit of 62 years) and breaking down attitudes towards the older workers. Supervisors are instructed in an "Age Code of Practice". Successful solutions in the recruitment and support of older workers are communicated in the company in its own discussion forum. And a "Recruit to Train" campaign offers further training courses on IT in particular to older workers. The oldest participant so far in this programme was 60 years of age.

The age issue is today a major element in the diversity policy and, in view of the change in the age structure, it is considered necessary to further expand appropriate activities. On its website Halifax hit the nail on the head: "To disregard the age shift was not an option".

Source: www.efa-agediversity.org.uk/case-studies/halifax.htm

3. Good Practice: Development of holistic integrative strategies

The preceding chapter outlined the individual action plans to promote healthy and active ageing in companies. The activities and tools explained are not “new inventions”. They are already practised in numerous companies – both to “look after human resources” and from cost-effectiveness aspects – without them being necessarily viewed by the companies in a “demographic context”. However, the approaches are gaining in importance with regard to future ageing processes and longer working lives.

Companies which are starting to develop concepts for productively managing the change in age structure are not starting from scratch. By systematically considering their starting situation, it becomes obvious in what fields of action they are already active and successful and where there are weaknesses and a priority need for action. One important result of the initial analysis in companies may be that greater importance is attached to HR tools and regulations on ageing issues which are already in place. In such cases the conclusion may be to further develop existing approaches and practise them in a more systematic or comprehensive way.

On the other hand, it may equally turn out that standard, well-established procedures and staff deployment patterns in the company run counter to healthy ageing processes and need to be thoroughly reviewed. It is often the case that previous company “solutions” (for example, staff deployment according to the sole motto “Everyone does what he can do the best and fastest”) are themselves creating the “age problems” (for example, reduction in the deployment flexibility of staff after a prolonged period of employment) which then in turn have to be solved.

Proceeding from the specific problems and the status of the previous labour and HR policy, every company must find and then go its own way in dealing with ageing workforces. The aim is to set the right priorities and to initially concentrate on single selected plans of action. However, at the same time, there needs to be a holistic, integrative overall strategy so that individual actions can take effect and remain sustainable.

A fundamental change in paradigms is required; away from the “youth culture” of previous decades towards a labour and HR policy embracing all generations which suits the future greater number of older employees and the longer working life. Such a change in paradigms requires intermeshing activities at different levels of action. It necessarily implies:

- A review of the working conditions with regard to the work ability and efficiency of the employees and the maintenance of health;
- The fostering of continuous further training parallel to employment, especially in the process of work;
- The support of new starts in occupations also for middle-aged and older workers, which presupposes the conception of new HR development strategies as well as the flexible organisation of working time and a recruitment and manning policy independent of age;
- The rethinking of negative age stereotypes and the (further) development of a corporate culture which is based on communication, can cope with conflicts and co-operation, and promotes personal responsibility with individual decision latitude.

Integrative and preventive action plans intermesh in such a strategic reorientation. The integrative approaches comprise those which are geared to maintaining the employment of older workers. The preventive strategies ensure, in addition, that the health and employability of the workers is retained over their entire working lives.

The example of Voestalpine AG, which is described in detail below, shows what a holistic strategy can look like in a large company.

▶ COMPANY EXAMPLE

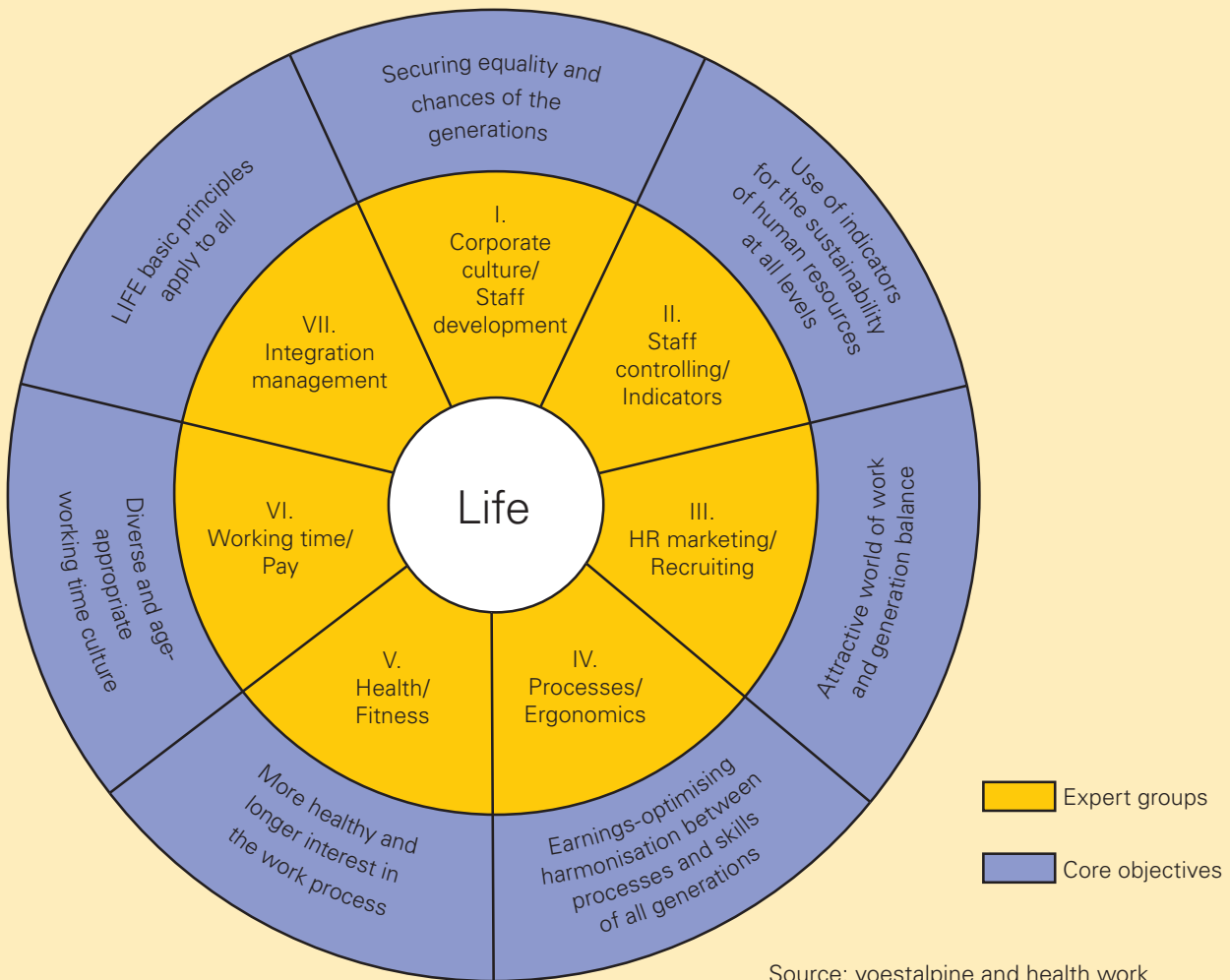
Voestalpine/Austria: The LIFE programme

The global company, Voestalpine AG, is Austria's largest industrial group with approx. 20,000 employees. Its core business is the production, further processing and sale of high-quality steel products. With the LIFE programme, Voestalpine is a pioneer in Austria as a company which is sensitised to demography.

"LIFE" is a programme and not a project – a programme for a future-oriented HR policy with which the company is aggressively tackling the changes in age structure in the world of work.

The company is set on a course of growth: The development of new markets and increases in sales are objectives for the coming years just as a major increase in the workforce. In view of the "war of talents" forecast to obtain young skilled workers and the explicit political objective of increasing the employment rate of older workers in accordance with the directives of the European Union, a "three-generation company" is to be created. This is to be attractive both for young, middle-aged and older workers so that the former decide in favour of Voestalpine at the start of their careers and the latter remain longer at the company.

What is the LIFE programme? It all began after a six-month analysis period and a Board resolution in May 2002. Eight/Seven groups of experts were formed throughout the concern. They tackle the fields of action which are viewed as being particularly important from demographic aspects: corporate culture and staff development, staff controlling and HR marketing/recruiting, processes/ergonomics, health/fitness, working time/pay and integration management (cf. Table 9). ▶

Table 9: The LIFE programme of Voestalpine

Source: voestalpine and health work consulting & services

At the same time, the managing directors of the individual companies of Voestalpine are requested, in line with target agreements, to work out a specific HR strategy for their respective site.

The expert groups are ideas workshops. Under the focal themes, concepts and procedures are developed on how "joie de vivre, inventiveness, fitness and success" can also be experienced and supported with increasing age in the company. These four terms stand for LIFE (in German).

Each team comprises representatives of the HR management, the works council and key corporate functions as well as the experts responsible for the subject (e.g. occupational physicians, labour lawyers, recruiters) from different works. Each group is headed by a mentor high up in the hierarchy. These mentors together form the "LIFE core group" in the sense of a steering committee. Here the draft concepts are discussed, supplemented, detailed and corrected. After "going through this shake-up process", the "power promoters" involved decide whether and to what extent the proposed changes are implemented.

The approach selected with LIFE is holistic and geared to the long term. As a result, concrete and harmonised action is developed and implemented, for example:

- "Formula 33", a concept according to which all employees can in future use at least 2% of their working time every year to undergo further training. This does not simply involve seminars but, for

example, job rotation or “trial weeks” in other departments. Therefore, the “Formula 33” campaign also stands for the “3 pillars of development”, i.e. “on, near und off the job”, for all 3 generations.

- A pilot project at the Linz factory where a plan is worked out in conjunction with 100 shift workers on what activities can be moved from night-time to daytime in order to reduce the night shift work for older employees;
- The maximum rise in the age limits for applicants both in in-house career planning and for external job advertisements.

In addition to the development and implementation of concrete projects, a broad-based discussion is organised with LIFE in the company about necessary age-appropriate changes to suit all generations involving the management as well as the works council, the executives and the workers.

The company has created its own internal website and designed a series of posters for the in-house communication of the core objectives of LIFE and as support for the opinion-forming process; articles were published in staff magazines and newsletters, workshops and seminars were held for different target groups and even a cabaret show was staged on this subject.

Key starting points to shape the world of work attractively for older workers are as follows, according to other statements of the programme promoters:

- the attitude of the executives and their approach towards the employees;
- innovative, creative tools and programmes, for example flexible working time systems, staff appraisal talks, job rotation and
- the corporate culture as the “ground in which everything thrives”.

The LIFE programme is supported and advanced jointly by the company management and the works council – under the patronage of the CEO. The initiative originated in the sector “strategic HR management”; the Institute for Workplace Health Promotion (IBG – health@work) conducted analyses beforehand, helped to develop the programme and supported the activities with advice. The active participation of the employees is an integral part of the programme.

Agreement was reached at top management level that, in addition to financial control factors focusing on short-term success, comprehensive measures for the long-term maintenance of the human resources represented important investments in the future and were therefore a key corporate objective even though they “are difficult to express in figures”. The fact that Voestalpine is traditionally characterised by a pronounced social responsibility to its employees also plays a role.

Sources: Bertelsmann Stiftung/Bundesvereinigung der Deutschen Arbeitgeberverbände 2003

This company example illustrates that the change in age structure, with all its varied effects and challenges, requires a corresponding multi-layered approach. An overall package must be created. And an age-appropriate labour and HR policy is not a result that can be achieved in the short term but is a long-term process, an “open-end event” so to speak. This requires the commitment of different company stakeholders.

The appropriate strategies require promoters and “attendants” to advance them; however, they can only achieve success to the extent that they are supported by the relevant resolutions of the management and Board and by mission statements and flanked by initiatives and activities of the skilled workers and executives as well as the employees and their representatives.

Steps for the successful implementation of the initiatives and measures

- Careful preparation which includes studies of recruitment trends and age profiles of the working population and labour market forecasts
- Open communication with the employees in general and the target group in particular on the objectives of the initiative, if necessary including seminars, workshops and circulars
- Early involvement of trade unions, works councils and staff representatives
- Early involvement of the older workers themselves
- Information and sensitisation of the departmental managers
- Gradual implementation including a pilot phase in which the initiative is tested and doubters can be convinced of its effectiveness (this may take place in a sub-section of the company which already meets certain conditions for the implementation of the initiative and can trigger a multiplier effect), regular checks and feedback so that the project can, if necessary, be modified accordingly
- Regular success reviews and assessment of the information gained from the feedback
- Constant communication with all employees to exclude stigmatisation or a feeling of inferiority of older employees and to prevent differences of opinion and conflicts
- Consideration of other aspects of the working environment, e.g. stressful activities which may prevent the objective set from being attained

Source: Walker 2000

References

- Bäcker, Gerhard; Naegele, Gerhard (1993): Alternde Gesellschaft und Erwerbstätigkeit. Modelle zum Übergang vom Erwerbsleben in den Ruhestand, Köln
- Baethge, Martin; Baethge-Kinsky, Volker (2004): Der ungleiche Kampf um das lebenslange Lernen, Münster
- Behrens, Johann (1999): Länger erwerbstätig durch Arbeits- und Laufbahngestaltung: Personal- und Organisationsentwicklung zwischen begrenzter Tätigkeitsdauer und langfristiger Erwerbstätigkeit. In: Behrens, Johann; Martina Morschhäuser; Holger Viebrok; Eberhard Zimmermann: Länger erwerbstätig – aber wie?, Opladen: 71 - 115
- Bellmann, Lutz; Markus Hilpert; Ernst Kistler; Jürgen Wahse (2003): Herausforderungen des demografischen Wandels für den Arbeitsmarkt und die Betriebe. In: MittAB, 36. Jg., Heft 2: 1 - 17
- Bertelsmann-Stiftung/Bundesvereinigung der Deutschen Arbeitgeberverbände (Hg.) (2003): Erfolgreich mit älteren Arbeitnehmern. Strategien und Beispiele für die betriebliche Praxis, Gütersloh
- Bertelsmann Stiftung (2002) (Hg.): Strategien gegen den Fachkräftemangel. Band 2: Betriebliche Optionen und Beispiele, Gütersloh
- Bosch, Gerhard; Sebastian Schief (2005): Ältere Beschäftigte in Europa: Neue Formen sozialer Ungleichheit. In: WSI Mitteilungen, Heft 1: 32-39
- Brussig, Martin (2005): Die „Nachfrageseite des Arbeitsmarktes“: Betriebe und die Beschäftigung Älterer im Lichte des IAB-Betriebspanels 2002, Altersübergangs-Report 2005-02 (www.boeckler.de)
- Bullinger, Hans-Jörg (Ed.) (2001): Zukunft der Arbeit in einer alternden Gesellschaft, Stuttgart
- Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (Hg.) (2004): Mit Erfahrung die Zukunft meistern! Altern und Ältere in der Arbeitswelt, Dortmund
- European Commission (2005): Communication from the Commission „Green Paper ‚Confronting demographic change: a new solidarity between the generations‘“. COM (2005) 94 final, Brussels
- European Communities (2004): Employment in Europe 2004. Recent trends and prospects. Employment and European Social Fund. European Commission, Brussels
- Expertenkommission „Finanzierung Lebenslangen Lernens“ (Hg.) (2004): Schlussbericht Finanzierung Lebenslangen Lernens: Der Weg in die Zukunft (28.7.2004: www.bmbf.de/pub/schlussbericht_kommission_III.pdf)
- Fuchs, Tatjana (2006): Was ist gute Arbeit? Anforderungen aus der Sicht von Erwerbstätigen, hrsg. von der Initiative Neue Qualität der Arbeit, Dortmund
- Grandjean, Etienne (1979): Physiologische Arbeitsgestaltung – Leitfaden der Ergonomie, Thun
- Ilmarinen; Juhani; Jürgen Tempel (2003): Erhaltung, Förderung und Entwicklung der Arbeitsfähigkeit – Konzepte und Forschungsergebnisse aus Finnland. In: Badura, Bernhard; Henner Schellschmidt; Christian Vetter (Hg.): Fehlzeiten-Report 2002, Berlin: 85-99
- Ilmarinen, Juhani; Jürgen Tempel (2002): Arbeitsfähigkeit 2010. Was können wir tun, damit Sie gesund bleiben?, Hamburg

- Ilmarinen, Juhani (2006): Towards a longer worklife. Ageing and the quality of worklife in the European Union. Finnish Institute of Occupational Health, Helsinki
- Kalwij, Adriaan; Vermeulen, Frederic (2005): Labour force participation of the elderly in Europe: The importance of being healthy. Institute for the Study of Labour – Discussion paper No. 1887, Bonn
- Kistler, Ernst; A. Ebert; P. Guggemos; M. Lehner; H. Buck; A. Schletz (2006): Altersgerechte Arbeitsbedingungen. Machbarkeitsstudie für die Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, Berlin
- Köchling, Annegret (2002): Projekt Zukunft. Leitfaden zur Selbstanalyse altersstruktureller Probleme in Unternehmen, Dortmund
- Molinie, Anne-Francoise (2003): Age and working conditions in the EU. European Foundation for the Improvement of Living and Working Conditions, Dublin
- Morschhäuser, Martina (2006): Reife Leistung. Personal- und Qualifizierungspolitik für die künftige Altersstruktur, Berlin
- Morschhäuser, Martina (2005a): Gesundheit im Erwerbsverlauf. Bedeutung und Ansatzpunkte einer alternsgerechten Arbeits- und Personalpolitik. In: Schott, Thomas (Hg.): Eingliedern statt Ausmustern – Möglichkeiten und Strategien zur Sicherung der Erwerbstätigkeit älterer Arbeitnehmer, Weinheim: 125-136
- Morschhäuser, Martina (2005b): Berufsbegleitende Weiterbildung und Personalentwicklungsplanung. In: Arbeit, Heft 4: 298-299
- Oppolzer, Alfred (2006): Erholpausen – nie waren sie so wertvoll wie heute. In: gute Arbeit. Zeitschrift für Gesundheitsschutz und Arbeitsgestaltung, Heft 4: 20-22
- Pack, Jochen; Hartmut Buck; Ernst Kistler; Hans Gerhard Mendius; Martina Morschhäuser; Heimfrid Wolff (1999): Zukunftsreport demographischer Wandel, Bonn
- Petrenz, Johannes (1999). Alter und berufliches Leistungsvermögen. In: Gussone, Max; Achim Huber; Martina Morschhäuser; Johannes Petrenz: Ältere Arbeitnehmer. Altern und Erwerbsarbeit in rechtlicher, arbeits- und sozialwissenschaftlicher Sicht, Frankfurt/Main: 63-99
- Rost, Richard (1991): Altern und körperliche Leistungsfähigkeit. In: Lang, Erich; Klaus Arnold (Hg.): Altern und Leistung. Medizinische, psychologische und soziale Aspekte, Stuttgart: 54-63
- Salthouse, Timothy A. (1991): Theoretical perspectives on cognitive aging, Hillsdale, New Jersey
- Tuomi, K.; J. Ilmarinen; A. Jahkola; L. Katajarinne; A. Tulkki (2006): Arbeitsbewältigungsindex. Work Ability Index, hrsg. von der Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, Schriftenreihe der Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, 3. Auflage, Dortmund
- Walker, Alan (2000): Produktiver Umgang mit alternden Belegschaften. Beispiele für erfolgreiche Lösungsansätze. Hg. Europäische Stiftung zur Verbesserung der Lebens- und Arbeitsbedingungen, Dublin
- Wolff, Heimfrid; Spieß, Katharina; Mohr, Henrike (2001): Arbeit – Altern – Innovation, Wiesbaden

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