

BRIEFING NOTE

Preventing skill obsolescence

Rapid labour market changes leave too many workers at risk of losing their skills

Most parents who have needed their children's help with their computer or smartphone have had a feeling of obsolescence – that unnerving sense that their skills are out of date. But family embarrassment is one thing; at work skill obsolescence can be more unforgiving.

Skill obsolescence is an integral part of technological progress (Box 1) and, in many cases, it is not a problem. It is natural that some previously necessary skills are no longer needed as people progress in their careers. However, skill obsolescence has become more important as jobs have become more demanding and complex. As technology progresses, this trend is expected to speed up in the coming years.

Box 1: Skill obsolescence – Definition and types

Skill obsolescence is the 'degree to which professionals lack the up-to-date knowledge or skills necessary to maintain effective performance in their current or future work roles' (Kaufman, 1974).

There are two main types of skill obsolescence (1):

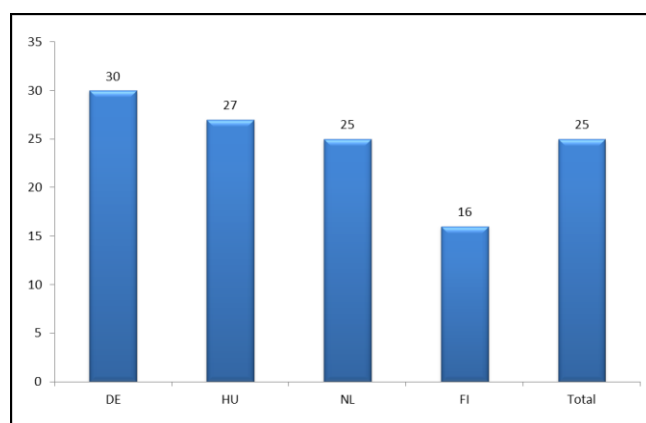
- **Physical skill obsolescence:** physical or cognitive skills and abilities deteriorate due to atrophy or wear and tear;
- **Economic skill obsolescence:** skills previously utilised in a job are no longer required or have diminished in importance.

Other types include **organisational forgetting** (loss of firm-specific skills due to worker turnover) and **perspectivistic obsolescence** (outdated views and beliefs on work and the work environment).

To obtain a clearer picture of the largely unexplored question of skill obsolescence, Cedefop launched a pilot survey (2) in four European Union (EU) Member States (Germany, Hungary, the Netherlands and Finland). The survey looked at how many people in work aged between 30 and 55 felt their skills were, or were becoming, obsolete. It also examined the type of skills and people most affected by skill obsolescence and what enterprises and policy-makers can do to reduce it.

Feeling left behind

On average, in the four countries surveyed, a quarter of workers believe that their current skill levels, necessary to perform their job most effectively, were equal to or below those required when they started their current line of work (Figure 1). This figure varies from 30% in Germany to 16% in Finland.

Figure 1: Skill obsolescence by country (%)

Source: Cedefop pilot skill obsolescence survey (2011).

Another survey finding was that an average of 16% of workers across the four countries believes their skills have become outdated in the past two years due to technological developments or structural

(1) Cedefop (2010). *The skill mismatch challenge: analysing skill mismatch and policy implications*, Luxembourg, EU Publications Office.

(2) Cedefop (2011), *Pilot survey on skill obsolescence among ageing workers: results and findings from the main phase*, Technical report, available upon request.

reorganisation. The two skills identified as most affected are speaking other languages and computer/ICT use.

Around 18 to 20% of workers feel unable to handle important physical aspects of their jobs as well as they could two years ago. This ranges from 13% in Finland to 24% in Germany. Similarly, around 18 to 20% of workers indicated an inability to handle the cognitive, knowledge-related aspects of their job as well as they did two years ago. This ranges from 16% in Hungary to 22% in Finland.

Unsurprisingly, according to the survey, 34% of workers who did not receive any training in the previous year are affected by skill obsolescence, but even 22% of those who had participated in training feel affected by it.

In all four countries, workers whose skill development has stagnated or deteriorated are more likely to worry about losing their job, have a temporary contract and have less chance of career progression. In Germany, around 20% of workers who believe their skills are up to date are afraid of losing their job. This figure rises to 30% among workers who feel their skills are, or are becoming, obsolete.

Those most at risk

Lower-skilled workers, older workers and, obviously, those without opportunity to develop their skills throughout their careers are most at risk of skill obsolescence (Figure 2), but even highly-skilled workers are not immune.

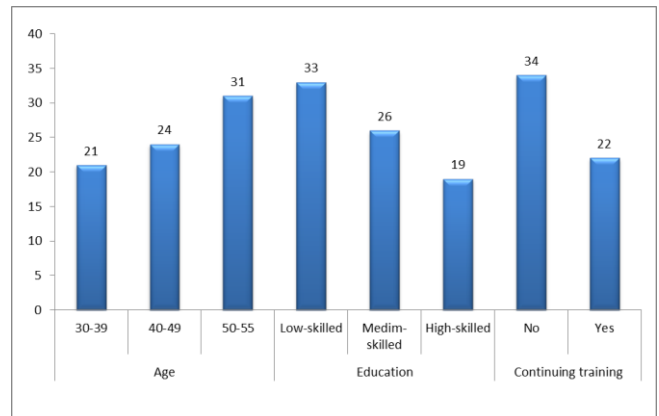
For lower-skilled workers, particularly those in precarious jobs, the threat of skills atrophy and depreciation is greatest. Some 33% of the lower-skilled workers experience a lack of skill development in their present career, compared to around 19% of highly-educated people.

Lower-skilled workers have suffered most from job losses in the current economic downturn. They are not only the most likely to lose a job, but also the least likely to find a new one. Their poor employment prospects threaten to raise the already stubborn level of long-term unemployment among the lower-skilled, by eroding their skills still further.

Skill obsolescence is pronounced in 'greying' western societies. While 31% of workers aged 50 to 55 experience skill obsolescence, ranging from 23% in Finland to 32% in Hungary, this falls to 21% for individuals aged 30 to 39. Physical skill obsolescence

can be a natural outcome of getting older. However, older or 'silver' workers are also at risk of economic skill obsolescence. The survey found that around 19% of workers aged 50 to 55 believe that technological developments have made their skills outdated in the past two years.

Figure 2: Skill obsolescence by group of workers (%)



Source: Cedefop pilot skills obsolescence survey (2011).

In the next decade, substantial numbers will work in technologically intensive occupations. All workers will need access to continuing training to keep up with new technologies and changing organisational practices. But there is a potential problem of silver workers not having opportunities to catch up with emerging skill demands.

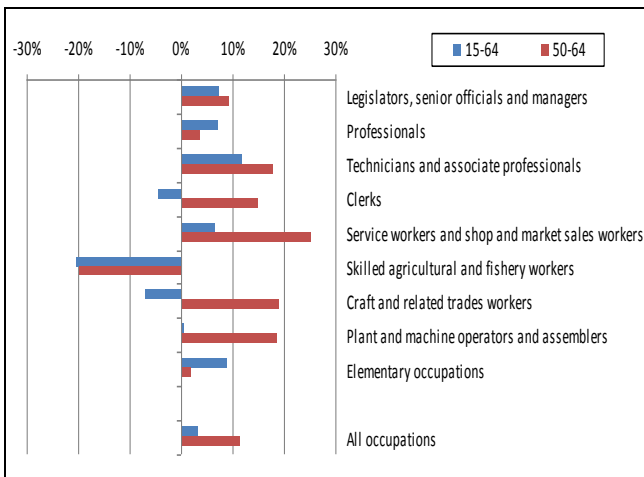
A greater proportion of silver workers are expected to work in medium-skilled and manufacturing jobs (Figure 3) which have a generally lower rate of continuing training than the service sector. A survey of companies in 30 European countries by Eurofound in 2009 indicates that while 57% of firms in the production sector, such as manufacturing, offer continuing training, this rises to 60% for all private sector services (71% in the finance sector) and 73% in all public services.

Older workers may also need support to adapt sometimes long-standing but outdated beliefs and attitudes and to adjust to new workplace realities. Not having the opportunity to develop continually one's skills can be costly. Older workers, in particular, who wish to extend their working lives, will find it increasingly difficult to do so if they do not keep up with the changing demands and complexity of future work environments.

According to the survey, around 21% of workers whose careers were interrupted for less than a year,

for example because of unemployment, child rearing or other family responsibilities, experienced skill obsolescence. This rises to 25% for those away from work for up to four years and climbs to over 30% for those taking career breaks of more than five years.

Figure 3: Projected growth in employment of ageing workers (50 to 64 years) by occupation, 2010-20 (%)



Source: Cedefop forecasting model of skill supply and demand; country workbooks (2012).

It is likely that people who are overskilled experience a greater degree of skill obsolescence, since they do not use all of their skills and have little opportunity to refresh the ones they had or learn new ones. This is made worse by the current economic situation. Weak employment demand is increasing competition for jobs. Under these conditions, people with better qualifications are more likely to take jobs at lower levels, with the result that their knowledge, skills and competences are underused and so in danger of becoming obsolete over time.

It is also possible that as people experience skill obsolescence, their skill level eventually falls below that needed to perform their job optimally. Survey findings confirm that individuals experiencing skill obsolescence are also more likely to be underskilled. Skill obsolescence may also restrict the chances of people being able to move to more suitable (or better matched) jobs either with their current or a new employer.

Coping with the pace of change

Employees were asked about changes in their organisations in the past two years. Types of changes examined were implementation of new or significantly

different machinery, techniques or IT systems, as well as changes to products, services and working methods. Ironically, Finland, the country with the lowest level of skill obsolescence was also the country where workers had experienced most changes. In Finland, 47% of the workers surveyed had experienced these sorts of organisational changes, compared to 45% in the Netherlands, 42% in Germany and 39% in Hungary.

However, Finland also had the highest incidence of work-related on-the-job training (63%), compared to 56% in the Netherlands, 46% in Hungary and 40% in Germany. Finnish workers also express the most positive attitudes to learning (German and Dutch workers are also very positive). Finland (with 67%) and the Netherlands (69%) also ranked highly in terms of organisations that encourage workers to broaden their skills. Even though changes may be varied, rapid and far-reaching, it seems that skill obsolescence can be countered by training and learning at work.

Mitigating skill obsolescence

Action to mitigate skill obsolescence can be taken at enterprise level. The likelihood of skill obsolescence is significantly higher when:

- individuals work in organisations that do not encourage them to broaden their skills. In the survey, 31% of workers in non-supportive organisations are affected by skills obsolescence, compared to 20% in enterprises that encourage learning;
- worker's jobs do not allow them to use a variety of their skills and exercise discretion. While 23% of workers in skill-intensive jobs experience skills obsolescence, this rises to 31% for those who are not.

The lesson seems to be to design jobs to make them as interesting as possible. Job design covers many aspects, but a particularly important one may be autonomy. The survey asked employees whether 'the many rules and regulations' prevented them from trying out new things. On average, 41% of workers across the four countries said yes. The figure ranged from 49% in Hungary to 37% in Germany. The figures for the Netherlands and Finland were 39% and 38% respectively. Workers who felt that such rules and regulations constrain their autonomy were significantly more likely to experience skill obsolescence.

Consequently, a supportive learning culture in the enterprise and jobs that provide autonomy and opportunities for employees to develop and broaden their skills can prevent or moderate loss of skills.

Attitude is also important. While attitudes of highly-qualified people in interesting jobs will be more positive, support for self-management for learning at all levels can arrest the decline in skills. Flexible, age-friendly human resource policies that take into account learning needs of older workers can slow down erosion of their skills.

Formal instruction or training during working hours is the most effective way to counter skill obsolescence. However, willingness of employees to train outside working hours is significantly higher for those in organisations that encourage their workers to broaden their skills.

Skill obsolescence and skill mismatch

Skill obsolescence is frequently an aspect of skill mismatch. The pilot survey, although covering just four countries, indicates strongly that skill obsolescence concerns not only unemployed people, but also those in work.

From the survey's findings, it also appears that skill obsolescence is a sizeable problem. Importantly, it is a problem that affects both older workers and 'prime-age' workers with 20 to 30 years of working life ahead of them. Skill obsolescence has direct implications for productivity in enterprises, as well as employee job satisfaction and career prospects.

The survey results also point to ways to reduce skill obsolescence and manage effectively the skills that people have, indicating that job design and learning attitudes are important factors.

As qualification levels of Europe's workforce are increasing – by 2020 more than a third of the workforce will have high-level university or equivalent qualifications – one challenge is to prevent high-level skills from going to waste. Maintaining and developing them is important for Europe's competitiveness.

While many questions remain open on how skill obsolescence develops and how to combat it, it is clear that the factors that prevent people from participating in adult training and which appear to contribute to skill obsolescence are two sides of the same coin. The characteristics that put workers at risk of skill obsolescence – old age, low skills, lack of organisational support for learning, job design that fails to get the best out of people – correlate with low participation in continuing training.

Lack of opportunity for workers to upgrade their skills and keep up with changing demand and for skills such as problem-solving, information and communication skills, or green skills, raises likelihood of unemployment and increases job insecurity. Skill obsolescence is closely related to a lack of career development and low job mobility, even for those who know how to operate their smartphones.