

Working life research



How is new technology changing the work of employees?

SAK working conditions survey 2018

SAK

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ONE ANOTHER

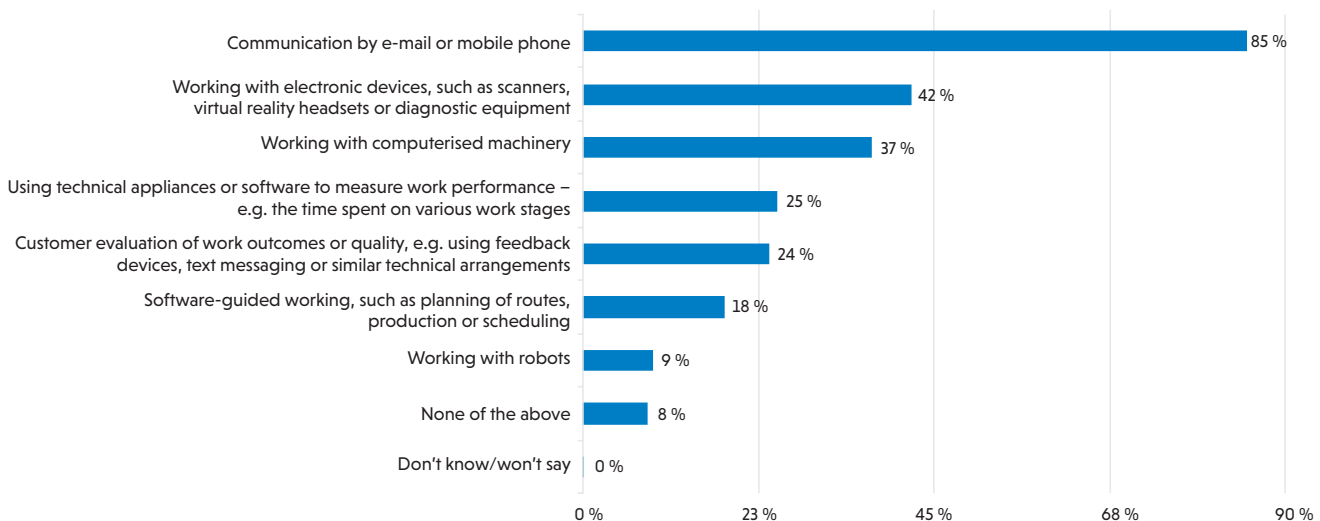
TECHNOLOGY HAS A SIGNIFICANT PRESENCE in the world of work nowadays. This is a verifiable megatrend that affects all levels of society in Finland. More than nine out of ten members of SAK-affiliated trade unions now use some digital communication facility such as e-mail or a mobile phone at work.

Digital technology has been deployed in a wide variety of ways at workplaces. New machinery and appliances have made working processes more technical, and some jobs can now be wholly automated. Digital work monitoring or reporting has increased control over some forms of work, and may have affected the scope and quality of social interaction at work, with interpersonal communications becoming increasingly digitised.

The 2018 SAK working conditions survey sought to gain an overall impression of how technological progress and its deployment are visible at work, and how the members of SAK-affiliated trade unions are experiencing the resulting changes. The survey interviewed 1202 people by telephone in February and March 2018, with respondents selected as a representative sample of SAK-affiliated trade union members by union, sex and age group.

This partial report describes how digitisation is affecting the work of employees organised in SAK-affiliated trade unions. How many jobs have changed due to new technology, and what is the experience of employees when these changes occur? While there are many ways to interpret this evolution in the world of work, our analysis enables us to track the factors that affect positive and negative experiences of digitisation.

Are the following technologies used in your work?

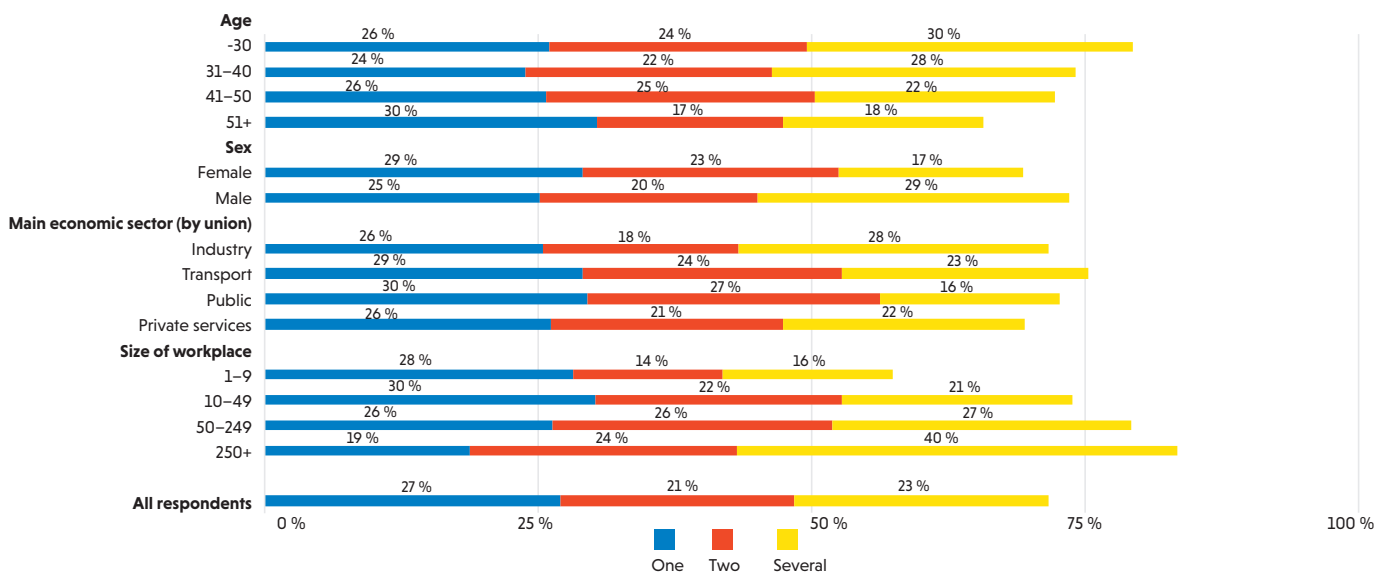


Use of technologies at work is common

Mobile phones and e-mail are quite widespread nowadays, and few people still regard their use as a new phenomenon or a new technology that affects their own work. We have accordingly excluded from further analysis the 20 per cent of respondents who reported using only a mobile phone and e-mail. Responses from this group differed considerably from those provided by the 72 per cent majority using at least one other new technology at work.

More than one respondent in three already works with computerised machinery, and an even higher proportion use various diagnostic or corresponding electronic devices, but fewer employees work with the kind of robots that often feature in popular news reports. Only about one respondent in ten works in one way or another with robots of this kind.

How many of these technologies (excluding mobile phones or e-mail) are used at work?



New technologies are used across all economic sectors, with the most diversified applications found in industry. Their use is naturally more common and more versatile in larger workplaces.

Men are more likely than women to use new technology at work, with young employees tending to use it more and in a wider range of ways than older employees. Negative experiences of new technology are also more common in older age groups. A majority of respondents under thirty years of age have favourable experiences of the impacts of new technology on their own work, whereas this balance of attitudes is reversed among older respondents. Negative aspects of using new technology are reported with increasing frequency as the age of the respondent increases.

Motives for deploying new technology: improved performance and greater control

The questions of the SAK working conditions survey concerning the use of new technology fall roughly under two headings. The first of these asks whether the technology relates to job performance, such as working with electronic appliances, computerised machines or robots, or whether the work is inherently controlled by software.

The other heading covers questions that seek to assess whether the technology is used for measuring job performance or evaluating work outcomes. Such technologies may be applied even when no new technology is involved in doing the actual work. They are used for improving measurement and evaluation, or effectively for increasing control.

Technology for enhancing job performance is clearly more common than technology associated with assessing or measuring work outcomes in all economic sectors and in all sizes of workplace.

Some 61 per cent of employees organised in SAK-affiliated trade unions use at least one performance-enhancing technological device at work. Some 40 per cent of these employees have jobs where work outcomes are evaluated or measured by new technology, meaning some control-related device.

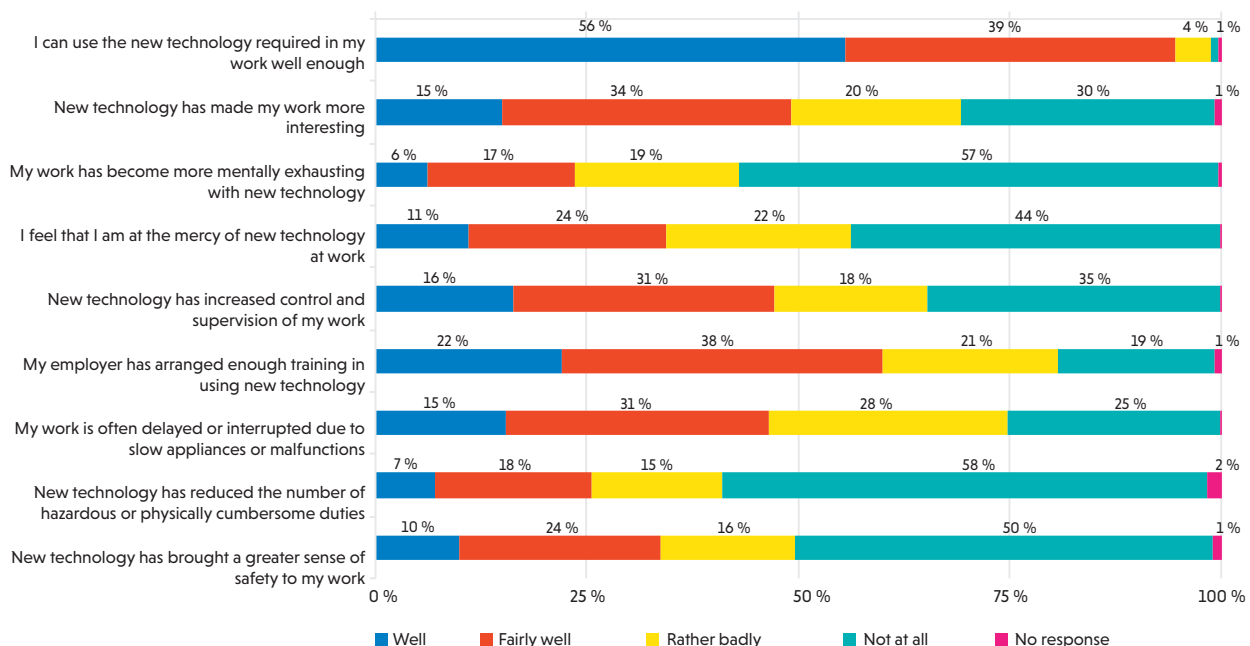
Variation between economic sectors is minimal in this respect. Performance-enhancing technology is slightly more common in industry, where there is also a lower incidence of control technology than in other sectors. The most problematic sector is transport, which has the highest incidence of technological arrangements related to evaluating and measuring work outcomes.

Positive and negative impacts of new technology at work

New technology has shaped the work of a large proportion of respondents, and whether this change is viewed positively or negatively depends on several factors. Most people are pleased to see machines take over strenuous or monotonous work, but technological progress can also leave employees with a narrower range of duties and a forced pace of work.

Impressions of the change in actual work also depend on the individual concerned. Some people welcome increased competency requirements as an opportunity to demonstrate their own skills, while others find such situations stressful and oppressive. An increase or reduction in personal contact with customers, for example, may likewise be considered a good or bad thing depending on the aspects of a job that the individual finds rewarding.

How do these claims describe your own work? Responses from the 72 per cent whose work involves using at least one new technology other than e-mail or a mobile phone.



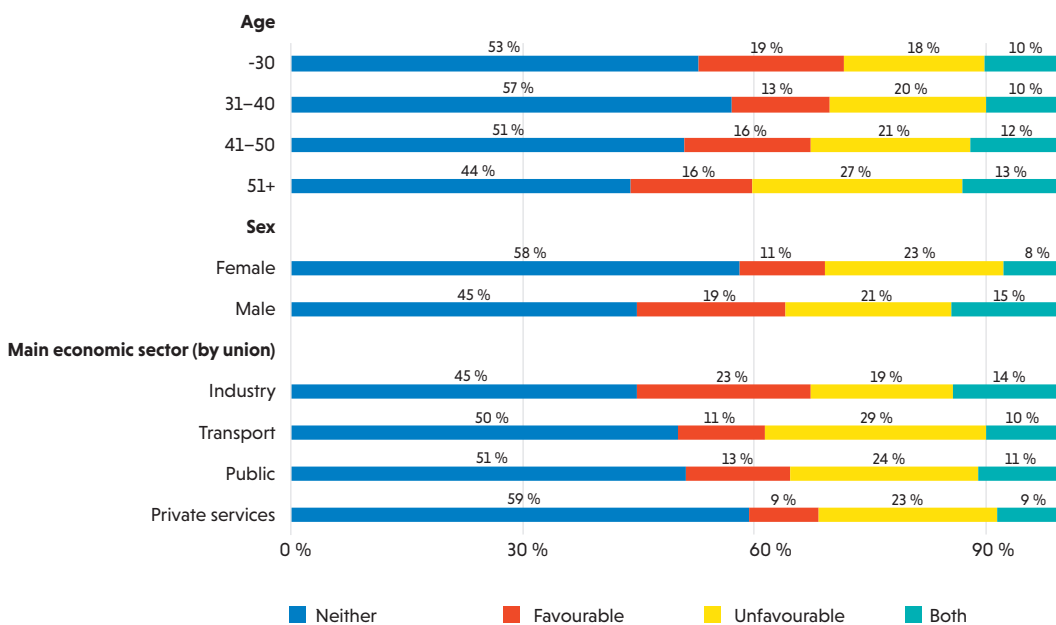
About half of the employees who had experienced new technology felt that their work had become more interesting. This is a significant and positive finding. One in three employees also felt safer at work, and a quarter had noted a reduction in hazardous or physically cumbersome duties.

On the other hand, many respondents had unfavourable experiences of the introduction of new technology at work. Almost a quarter of these employees felt that work had become more mentally exhausting, and more than a third reported an experience of being at the mercy of new technology. Experiences of lost working fluency due to slow appliances or malfunctions were even more clearly common. Nearly half of all employees also felt that control and supervision of their work had increased.

Experiences of technological change are inconsistent, with simultaneously positive and negative impacts felt in the world of work. About one in eight (12 per cent) employees organised in SAK-affiliated trade unions have both favourable and unfavourable experiences of significant impacts of new technology on their work. Half of the respondent employees report no such experiences. About one employee in six (16 per cent) has experienced only favourable impacts of technological progress, and a slightly larger group of employees (22 per cent) has only negative experiences to report.

The following graph shows favourable and unfavourable experiences of introducing new technology, sorted by the age, sex and main economic sector of respondents. This summary analysis enables us to compare the incidence of positive and negative experiences of deploying new technology in relation to background factors.

Favourable and unfavourable experiences of deploying new technology in relation to background factors.



Summary analysis

A principal component analysis of the statements shown in the graph on page 4 clearly highlights three logical components explaining about 60 per cent of the deviation in variables. The first component was strongly weighted by three statements: technology has made work more interesting, it has reduced hazardous or physically cumbersome duties, and it has increased feelings of safety. We called this component the favourable aspect of deploying new technology.

The second component was weighted by the negative aspects of deploying new technology: the work has become more mentally exhausting, employees feel that they are at the mercy of technology, technology has increased supervision and control of working, and work fluency is lost or interrupted due to slow appliances or malfunctions.

The third component was weighted by the statements concerning expertise or training, i.e. "I can use the new technology required in my work well enough" and "My employer has arranged enough training in using new technology".

The favourable and unfavourable aspects of deploying new technology show some degree of positive correlation (0.18). These aspects are not mutually exclusive, even though they describe quite different impacts of new technology. Just over one respondent in ten returns an average outcome of at least "quite a lot" for both dimensions. The impact of new technology on the work of these respondents is simultaneously both clearly favourable (work becoming more interesting, secure and less strenuous) and clearly unfavourable (work becoming more mentally exhausting, feelings of being at the mercy of technology, increased supervision and control, disruption due to slowness and malfunctions).

Younger employees of not more than 30 years of age have better experiences of new technology than their older peers. This is hardly mysterious, as they have pursued their entire working careers in a world of which technology forms an integral part. During their relatively brief span of technology-saturated adulthood and working careers, new technology has not required younger people to change their working practices in the same way as their older colleagues have experienced.

The disparity between favourable and unfavourable experiences is positive (+1) among employees not more than 30 years of age, whereas it is negative in other age bands. Conditions are most difficult for the oldest age band, comprising employees over 50 years of age. 27 per cent of this group have only unfavourable experiences, compared to 16 per cent with only favourable experiences, so the disparity grows to -11.

Conditions are more favourable for men than for women, and it is clearly more common for men to have positive experiences. They also have fewer negative experiences than women. The disparity between favourable and unfavourable experiences is -2 for men and -12 for women.

The difference between the sexes reflects differences between economic sectors. New technology has clearly been deployed more successfully in the male-dominated industrial sector than in other economic sectors, with industry remaining the only economic sector returning a preponderance of favourable over unfavourable experiences of introducing new technology. The disparity of experiences is +4 in this case.

A disparity of -18 indicates that the worst problems are in the transport sector. Even though this is also a male-dominated economic sector, it employs far fewer individuals than industry, so its impact does not correct the proportion of men to the level of women in the overall analysis.

Workplaces hold the key to successfully deploying new technology

Despite the clearly evident disparities between age groups, sexes and economic sectors, good and bad experiences of deploying new technology can be found in all sectors, in all age bands, and in the experiences of both men and women. Fortunately there are no structural factors pre-determining the successful deployment of new technology.

SAK uses its Good Job Barometer to gauge the quality of working life. There are no technology factors built into this Barometer, so it can be used for analysing how experiences of the quality of working life are reflected in the success of deploying new technology. The outcome of this procedure shows a clear positive correlation between the general quality of working life and favourable experiences of new technology.

25 per cent of employees working in conditions that are classified as good or fairly good under the SAK Good Job Barometer have only favourable experiences of technological progress, compared to only 9 per cent whose corresponding experiences were unfavourable. The overall disparity between favourable and unfavourable experiences is accordingly +16. This disparity falls to -4 among employees with average working conditions, and to alarmingly low levels when working conditions are fairly poor or poor. Only 6 per cent of employees in these circumstances have only favourable experiences of new technology, compared to 38 per cent whose experiences are wholly unfavourable, meaning that the disparity of experiences reaches -32.

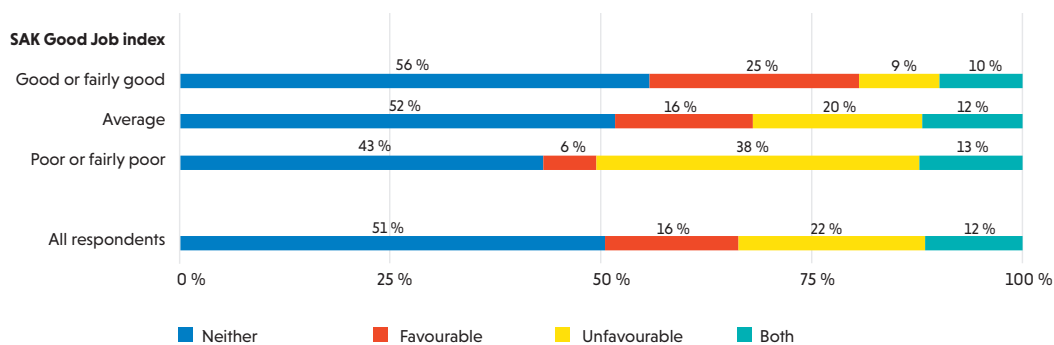
This analysis clearly illustrates an important point to bear in mind when improving employee job satisfaction and the productivity of work are viewed as a social objective. Improving working conditions is also an effective way of enabling the successful deployment of new technology, meaning that workplaces already hold a crucial key to achieving this success.

The Good Job Barometer

As part of its 2014 working conditions survey, the Central Organisation of Finnish Trade Unions (SAK) compiled a new Good Job Barometer describing the quality of life at work. The SAK Good Job Barometer has two parts, one measuring employment essentials and the other focusing on smooth working experience factors.

The Barometer assesses a total of ten aspects of working. The employment essentials comprise health, safety, income, job security and suitability of work, and equitable treatment of employees. A smooth working experience correspondingly involves employee empowerment, meaningfulness of work and happiness, the pace of work, support from the employer, and community support and solidarity at work. These dimensions are combined to yield a qualitative classification of working conditions into five levels: good, fairly good, average, fairly poor and poor.

Favourable and unfavourable experiences of deploying new technology at various levels of working life quality.



Employees can use new technology at work, but there is room for improvement

Most respondents felt that their technological expertise was adequate. This aspect was studied by examining attitudes to the claim “I can use the technology required in my job sufficiently well”. Just over half (56 per cent) of all respondents felt that this claim described their circumstances well, with 39 per cent feeling that it described them fairly well. Four per cent felt that the claim was a poor description and only one per cent felt that it was completely inappropriate.

While the general value of this finding is a matter of taste, it is anyway clear that there is a shortfall in expertise, and that this has at least some impact on both the productivity of work and on job satisfaction.

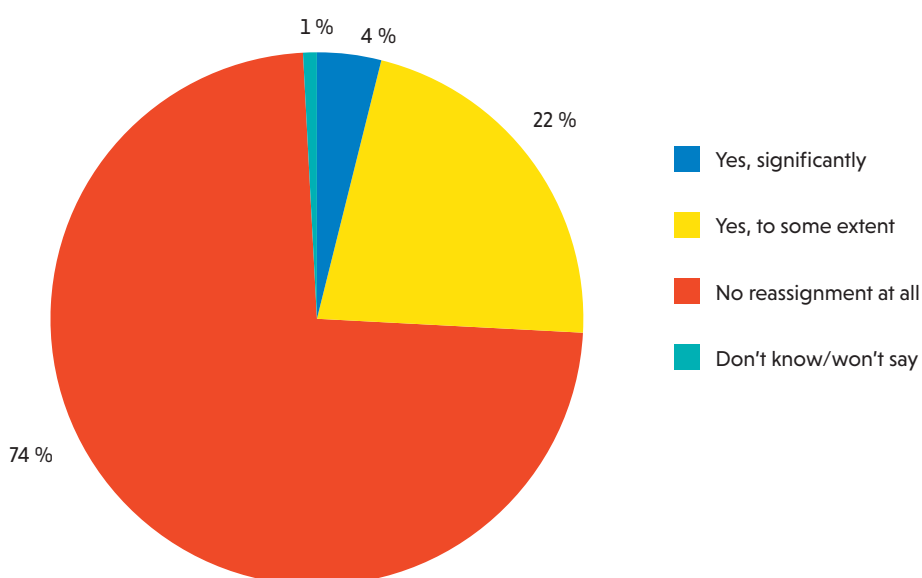
The working conditions survey clearly indicates that new technology increases the job skills requirement. Almost two thirds (63 per cent) of employees who have encountered technological progress reported that its deployment had increased the need for expertise. It is a matter of concern that a fairly large proportion of respondents (40 per cent) felt that their employers had failed to arrange enough training in operating new technology. This problem increases with age, with older respondents reporting a greater issue of inadequate retraining. On the other hand, there was no disparity between the sexes in experiences of inadequate training in operating new technology.

This raises a concern with respect to achieving the goal of prolonging working careers, because older employees are not receiving enough on-the-job training to update their skills. There is a clear link between skills and the training arranged by employers. A much higher proportion of employees are confident in their own abilities when the employer has provided enough training.

Deploying new technology does not usually eliminate jobs

Nearly half of all respondents (48 per cent) reported that new technical facilities such as information systems, automation, robots and navigators had become part of their work in recent years. This means that technological progress has been quite commonplace at work.

Have any of the respondent's previous duties been reassigned to machines, appliances, robots or other devices? Percentage of respondents reporting the deployment of new technology at work.



Respondents engaged in work where new technology had been deployed were asked whether any of their previous duties had been reassigned to machines, appliances, robots or other technological devices. Three-quarters of these respondents reported that no such reassignments had occurred. In only four per cent of responses had duties been significantly mechanised. Some degree of reassignment was reported in 22 per cent of cases. A total of 12 per cent of all respondents to the working conditions survey had witnessed at least some mechanisation of duties in recent years.

New technology changes work in many ways. While it may increase, eliminate or change individual duties, it has not shown any inherent tendency to terminate entire workplaces, at least for the time being. Even though tens of thousands of jobs have been transferred or eliminated in Finland with the taking of production investment decisions, people in work do not currently feel that the loss of entire workplaces due to deploying new technology has been more than a marginal phenomenon in recent years.

SAK working conditions survey 2018

The SAK working conditions survey records the experiences and attitudes of SAK-affiliated trade union members concerning work and working arrangements. The survey is conducted every two years.

The 2018 working conditions survey interviewed 1202 people by telephone in February and March 2018, with respondents selected as a representative sample of SAK-affiliated trade union members by union, sex and age group.

This partial report describes how digitisation is affecting the work of employees organised in SAK-affiliated trade unions. How many jobs have changed due to new technology, and what is the experience of employees when such changes occur?

The Time of Opportunities project

This partial report of the working conditions survey concerning digitisation was produced as part of the SAK Time of Opportunities project. In spring 2018 this project was examining the effects of deploying artificial intelligence and other advanced technology on the work of employees organised in SAK-affiliated trade unions.

The four-year Time of Opportunities project is studying the impacts of digitisation, globalisation, climate change and depletion of natural resources on the world of work and on the everyday lives of employees.

www.sak.fi/en/materials/time-opportunities



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