

Using AI to help secure a skilled workforce

White Paper

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Executive Summary

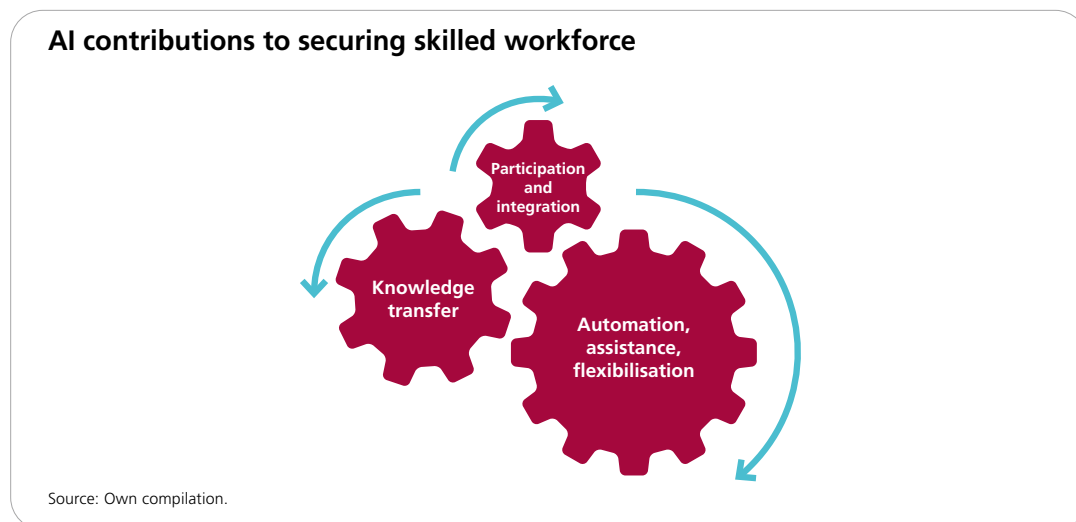
Whether in manual professions, medicine or administration – shortages of skilled workforce are emerging or are already noticeable in almost all sectors. These are also being exacerbated by demographic developments such as the imminent retirement of baby boomers and will be much more noticeable in some professions than in others. This applies to nursing care, for example, where demographic change will have a double effect, as the number of nursing professionals will decrease and the number of people in need of care will increase at the same time.

However, it is clear that the problem of skilled workforce will not leave any sector unscathed. Demographic developments and the structural change in our working world therefore require new strategies and innovative solutions. Artificial intelligence (AI) plays an important role here, especially in the dimensions of automation and AI-based assistance, participation and integration in the labour market and knowledge transfer into the future.

(How) Can AI contribute to securing skilled workforce?

In order to counter skills shortages, previously untapped labour market potential must be activated: the (long-term) unemployed, people with physical or mental disabilities or 'hidden reserves', which include those in marginal or part-time employment as well as older workers. In addition to these domestic labour force potentials, the potential of migrants must also be increasingly tapped. Artificial intelligence can contribute in many

ways to securing skilled workforce, making better use of workforce potential and facilitating the promotion of skilled workforce migration.



Automation and AI-based assistance offer far more than the mere substitution of work activities. On the one hand, they support and relieve employees and free up time for more important or more complex tasks: For example, AI language models can simplify nursing documentation, leaving more time for direct work with people in need of care; or in customer service, AI can help to classify enquiries and answer simple queries automatically. On the other hand, AI-supported automation of activities increases productivity and can therefore reduce the (future) need for skilled workforce to some extent: Large language models such as ChatGPT can provide support in knowledge and factual work, such as transcribing texts, translating from one language to another or analysing documents. Collaborative robots take on physically demanding tasks, such as handling hazardous substances. In this way, professions with particular challenges for the recruitment of skilled workforce can be enhanced by AI.

In addition to promoting part-time employment close to full-time, AI-supported flexibilisation of working hours can help to adapt employment to individual life situations through hybrid working time models, making it easier to reconcile work and family life and activate hidden reserves on the labour market.

However, AI-supported automation requires digitalisation, which has so far been lacking or insufficient among two important players in the labour market: small and medium-sized enterprises (SMEs) and public administration. Here, digitalisation and automation efforts must be promoted by establishing and consolidating a suitable data infrastructure and by developing technical skills (in further training), including through targeted funding offers. In addition, collaboration between humans and AI requires a working environment that is conducive to learning. This is because relieving people of tasks that are easy to automate must not lead to them being overburdened with demanding tasks or to mental overload, as positive routines are important for a healthy work organisation. Human skills such as empathy and creativity must not be lost either.

Participation and integration in the labour market

In order to combat the shortage of skilled workers, it is important to make even better use of the labour market potential for the specific demand for skilled workers and to (better) enable people to participate in the labour market through suitable framework conditions. This includes the integration of the (long-term) unemployed, people with disabilities and older people; however, the promotion of skilled labour migration can also play an important role in these efforts.

In the case of the long-term unemployed, it is essentially about two things: firstly, bringing together (AI matching) the unemployed and vacancies based on existing qualifications, skills, strengths and interests, and secondly, arranging needs-based further training programmes in order to build up qualifications that were not previously available.

AI systems can also make an important contribution to enabling people with disabilities to participate in everyday and working life by compensating for physical or mental impairments through assistive support, for example in the form of collaborative robots. The promotion of participation is not only important in the context of the skills shortage, but must itself be the goal of political action.

Another lever for increasing the volume of labour is the immigration of skilled workers from abroad. In order to noticeably increase Germany's attractiveness as an immigration country, administrative processes must be streamlined, particularly in the visa and recognition process, following the example of Canada, which has been successfully using AI in the visa process since 2018. For example, the Skilled Immigration Act (November 2023) aims to simplify the situation for both foreign skilled workers and authorities, for example by eliminating the need to recognise professional qualifications before entering Germany. In addition, AI-supported translation tools can break down language barriers by facilitating access to the labour market, reducing administrative hurdles and thus making integration into society easier in the medium term.

Knowledge transfer into the future

The automation of activities and collaboration with AI-supported machines increase the need for (vocational) training for many companies and employees alike. In addition, the activation of the (long-term) unemployed for the labour market also requires tailor-made further training opportunities in order to close any gaps between qualifications and requirement profiles. Finally, the (dual) education of skilled workers must also adapt to the new opportunities offered by AI-based technologies. In companies, training and further education programmes are faced with the need to replace departing skilled workers whose experience has been lost to date. AI-supported knowledge transfer to the next generation of skilled workers can provide valuable support here by using AI systems to identify and store employees' experience and feed it into an intelligent assistance system that can provide new employees in the work process with instructions on the correct execution of a task via image, sound or light signals.

Companies should involve their employees in the introduction of new AI tools and the new knowledge transfer tool in a participatory manner in order to specifically reduce fears and reservations about unauthorised data storage or performance monitoring, build trust in the technology and promote acceptance of the change. Companies must respond to these concerns by taking basic data protection requirements (e.g. the General Data Protection Regulation, GDPR) into account. Above all, employees should be closely involved in the design and introduction process of the systems in order to be able to respond to reservations and problems that arise when using the systems at an early stage.

Framework conditions

AI alone will not be able to eliminate skills shortages; rather, efforts to use modern technologies to secure skilled workforce must be embedded in (social) policy measures that go further and start earlier than technological support can provide. This is because AI in the workforce context is associated with specific challenges that require active shaping by all stakeholders: compliance with rules, avoidance of automation bias, transparency, ultimate decision-making by humans, unauthorised performance monitoring.

In addition, the AI transformation itself must be embedded in suitable framework conditions in order to have an impact on securing skilled workforce. This includes, for example, the early promotion of AI skills at school, investment in (computing) infrastructure, targeted support for small and medium-sized enterprises (SMEs) and the transfer of science, as well as the development of AI skills in the public sector. In this way, an economy and administration modernised with AI helps to secure skilled workers. Investments in AI are therefore not an end in themselves to strengthen the competitiveness of German companies, but rather make an effective contribution to solving major social and economic challenges.

Imprint

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