

# Artificial Intelligence in the Workplace

## How does the German population perceive the influence of artificial intelligence on the future of the workplace?

**Authors:** Pero Došenović, Christopher Starke, Kimon Kieslich, Janine Baleis, & Frank Marcinkowski

### Key Findings

The fear of losing one's job due to increasing automation of processes and the implementation of artificial intelligence (AI) is considered the overarching concern for employees when they ponder the effects of digitization. The following survey shows that these representations only reflect the actual concerns of the respondents to a limited extent. One of the key findings of the study is that the surveyed citizens perceive little potential for change in their own workplace. However, those who do expect changes clearly differentiate between various aspects of work. They expect positive outcomes of AI has potential when it comes to matters involving occupational health and safety, the necessary skill requirements and the overall workload. However, the maintenance of social contacts, their respective income or opportunities for co-determination in the workplace could suffer according of the respondents. The handling of data by and potential workplace surveillance through AI are two of the biggest concerns. Only very few people fear job loss for themselves, people from their private environment as well as mass unemployment.

### Background

A popular opinion both in the academic literature and the public debate is that digital technologies, such as AI, will result in far-reaching and drastic change in the workplace (e.g., Frey & Osborne, 2017; Makridakis, 2017). For years there have been concerns, that the constantly increasing automation of processes will eventually result in a loss of jobs. At the same time, the overall potential of and the improvement through digital technologies is repeatedly emphasized - not only for employers, but also for employees (e.g. by increasing safety standards or reducing physical strain).

In their respective AI strategies, both the German government and the European Commission highlight the importance of AI for the workplace. Their considerations range from a fundamental change in work profiles and the creation

of new professions to problems of discrimination in AI-supported recruitment processes and questions of data protection for employees.

The assumption that digital technologies of AI will bring about changes in the workplace is only rarely questioned. Time will tell which prognoses are accurate. Also, little is known about the expectations and fears that already exist among the population with regard to the influence of AI on the future of work. A socially responsible design of digital technologies is most likely if all stakeholders can voice their concerns and that their perspectives are incorporated into the design process. Time and again, however, media reports can be found in which fear of "the robot", of losing one's job or of constant surveillance are discussed which rather indicate negative sentiments towards emerging digital technologies. In the third thematic survey

of the *Opinion Monitor Artificial Intelligence* (German project title *Meinungsmonitor Künstliche Intelligenz*; acronym used from here on:

MeMo:KI) we deal with the presumed consequences of the introduction of AI in the workplace. The survey includes 1,001 respondents, 602 of whom are currently employed.

## Methodology

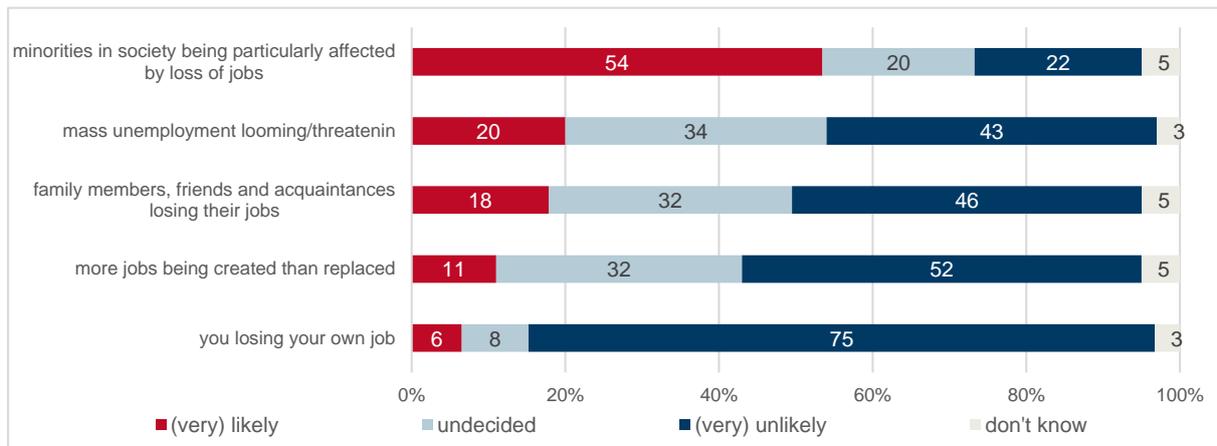
|                               |   |
|-------------------------------|---|
| <b>Method</b>                 | Online survey   |
| <b>Ausführendes Institut:</b> | forsa Politik & Sozialforschung GmbH  |
| <b>Population:</b>            | German population over 18 years of age who use the Internet at least occasionally           |
| <b>Sample:</b>                | Weighted random sample (N=1.001)  |
| <b>Weighting Criteria:</b>    | Age, gender, and region (by federal state)  |
| <b>Survey Period:</b>         | 2020, August, 24-28   |
| <b>Further Information:</b>   | <a href="#">Detailed Methodology Overview</a> for the MeMo:KI project [in German language]. |

## Only few people fear the loss of their own jobs through AI; jobs for social minorities do appear to be at risk

Discussions about the effects of digitization and AI work-related issues often focus on the security of workplaces. Robotisation and automation are often seen as a danger to the workplace. We therefore wanted to explore how likely respondents perceive a loss of employment for themselves, people from their immediate environment or members of social minorities and disadvantaged groups such as people with a migration background, disabled or single parents.

Overall, only a few of the respondents expect fundamental changes in the job market. Only around 11 percent of those surveyed assume that more new jobs will be created than will be lost, while about 52 percent disagree with this statement. The respondents see the least risk of job loss in their own line of work. Only 6 percent consider the loss of their own job through AI probable or very probable. 20 percent suspect mass unemployment and slightly less believe that family members, friends and acquaintances could lose their jobs (18 percent).

However, respondents suspect that social minorities will be adversely affected by AI in the workplace. 54 percent of those surveyed stated that they expect such social groups to experience further disadvantages from AI. It remains to be seen how exactly that conclusion is drawn: is it due to the way AI penetrates the workplace or are the answers due to the awareness of the often precarious (employment) situation of members of social minorities who are therefore regarded as more at risk by AI? Is the predicted job loss mainly associated with professions that largely rely on minority employment? Or is AI assumed to discriminate against specific groups? In a previous survey, we showed that less than 30 percent of people are aware of the discriminatory potential of AI (Kieslich et al., 2020). In this specific case, it seems that the awareness of the vulnerability of specific groups to the fundamental changes that AI can cause is quite high. It is also far more pronounced, than the awareness to the personal risk situation.

**Figure 1: Presumed consequences for the labor market in the next five years.**

Annotation: N=1.001, all values in percent.

Question: How high do you estimate the probability that an increased use of artificial intelligence in the next five years results in, ... (1=very unlikely; 5=very likely)

## AI driven changes are primarily expected in data security and job requirements

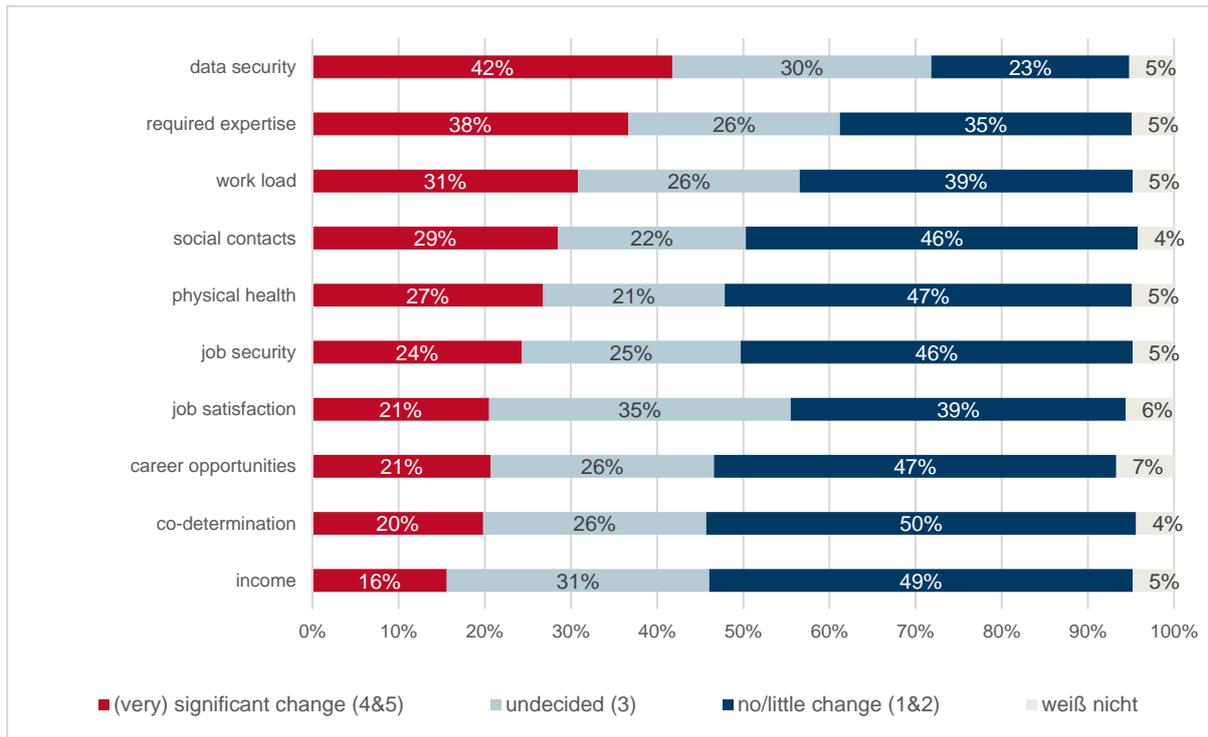
As has already been predicted on several occasions, the use of AI can lead to a variety of sweeping changes in the workplace. We asked the employed respondents (n=602) for their assessment of the influence of AI on various working conditions in their own professional activities. To what extent is there an overall awareness within the general population of how AI could change personal workload, tasks and responsibilities?

It clearly shows that for most working conditions, a relative majority of the German population tends to expect little to no change (Figure 2). Only a small proportion of the employees surveyed believe that implementing AI into the workplace will change something for them in the medium term, in particular regarding the development of income (16 %), co-determination in the workplace (20 %), career opportunities (21 %) and job satisfaction (21 %). A further, 42 percent expect that there will be changes with regard to the security of their data. Lastly, 38 percent of employed respondents suspect

changes in terms of the expertise required at their workplace.

Thus, it can be summarized that only a small part of the respondents is aware of the potential for change in AI. In some areas it is easier for the interviewees to perceive AI and their own working conditions to be related to each other. According to experts, however, it is very likely that AI will lead to significant changes in various areas. Trade unions and other employee representatives need to raise awareness among their members and constituents for the potential changes in AI (beyond potential job losses). Only comprehensive information about and awareness of the possible changes through AI opens the way for employees to actively participate in shaping the transformation processes. If these processes take place without involving citizens themselves or if they are only able to react to processes that are already underway, this can lead to friction during the technological transformation phase and may very well result in growing dissatisfaction and dwindling self-efficacy on the part of employees.

**Figure 2: Assessing change within the own workplace through the introduction and implementation of AI**



Annotation: N=602 (Employees), all values in percent.

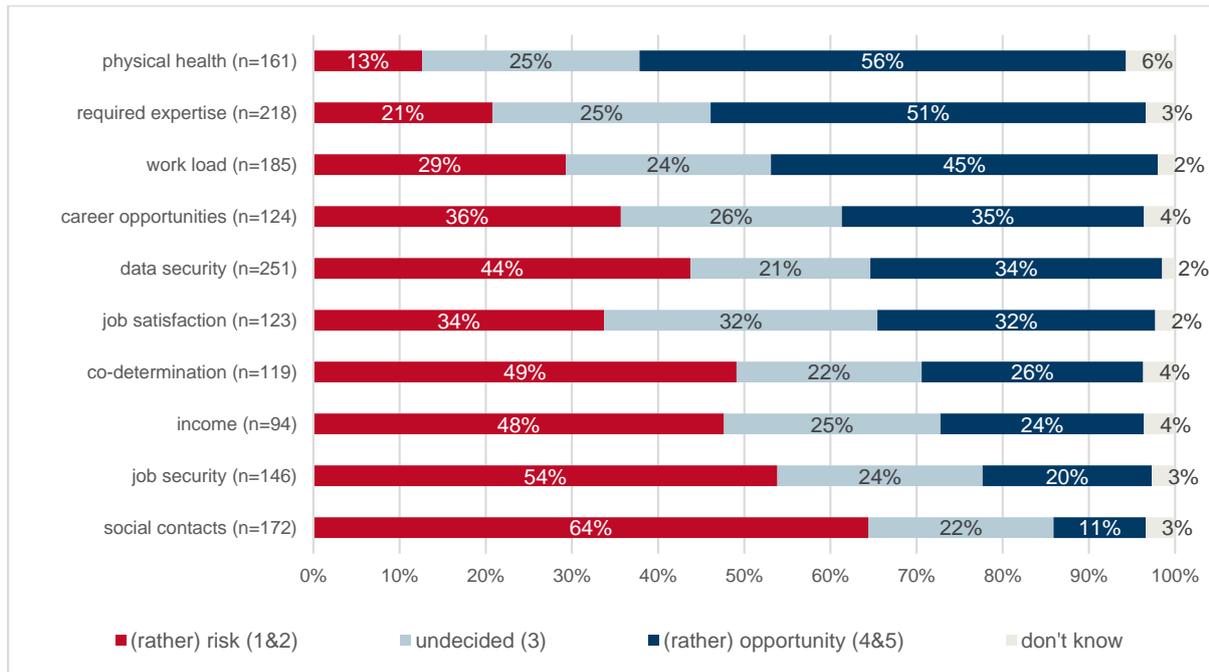
Question: How would you rate this: To what extent will the following work conditions in your own professional life be changed in the next five years by the use of artificial intelligence?  
(1=no change; 5=very significant change)

## Opportunities for the relief of employees through AI

Even though the majority of respondents anticipate surprisingly little change in their workplace as a result of AI, the question still arises as to the direction of the presumed change. Do the respondents believe that AI will have positive or negative effects on their working conditions? In

order to get better insights into the expected changes in the workplace, we asked the participants whether they tend to rather see chances or risks in using AI. Figure 3 shows the answers of those who do suspect a change in the corresponding working conditions.

**Figure 3: Assessment of opportunities and risks in working conditions for affected employees**



Annotation: N=94-251 (Only includes those people who see significant potential for change); all values in percent.

Question: Do you consider the use of artificial intelligence for the following working conditions in your professional activity more as a risk or as an opportunity?  
(1=risk; 5=opportunity)

From the point of view of the interviewees, AI has a positive influence especially on occupational safety and health in the workplace. 56 percent expect positive changes. Likewise, the perceived opportunities predominate in terms of competence requirements (51%) and workload (45%). Most of those who suspect changes here do not see a devaluation of their own qualifications or an excessive demand for new tasks, but rather relief and new possibilities for individual development.

However, the data also shows that there is an acute awareness of the risks of AI for individual areas. This is particularly true for social components of work, such as social contacts (64 % risk perception) or opportunities for co-determination (49 % risk perception). A sense of belonging, camaraderie with colleagues and social interaction seem to be endangered by AI according to the interviewed employees. The results further show that if changes are expected in terms of job security and income,

these are more likely to have negative consequences.

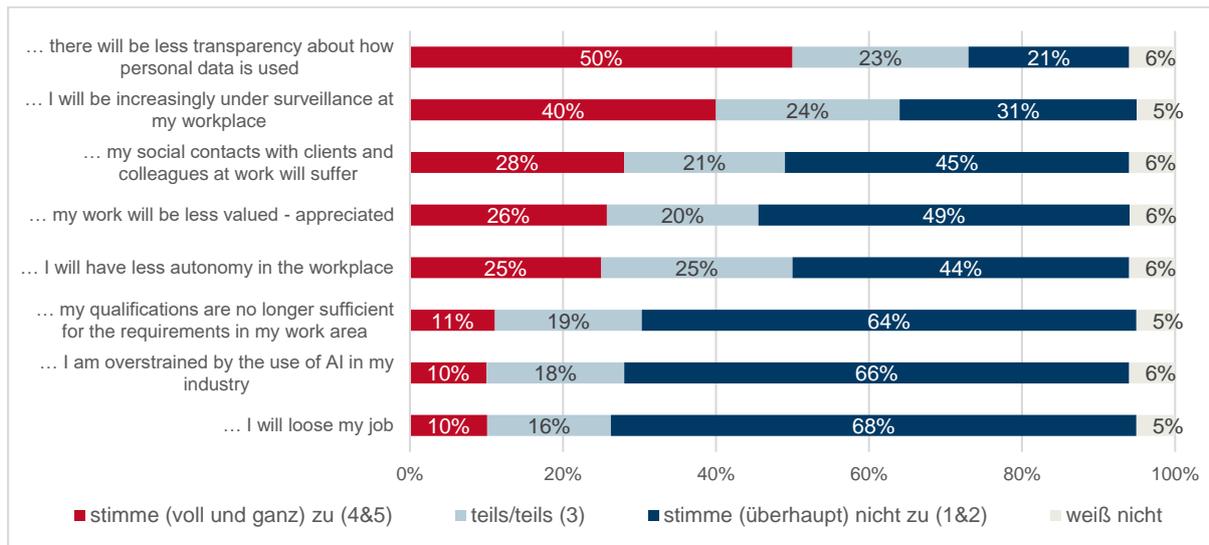
The results once again showcase differentiated assessments of AI and its influence on different aspects of work. For empirical research, this means that the individual consequences of AI and their perceptions by citizens must be intensively researched and examined. Especially with regard to explanations for the differences in perception. For public discussion and political decision making, the results give rise to a differentiated approach to the potential consequences of AI in the workplace. The results can thus provide an impetus for a more in-depth discussion involving and drawing from public opinion. If respondents become more aware of the problem in the areas covered by the survey and if the perceived risks in the use of AI outweigh the potential opportunities, this may lead to a stronger response to AI systems. At the same time, exaggerated hopes can lead to disappointment.

## Hardly any worries about a potential lack of expertise

Looking more closely at the fears of the employed persons regarding the influences of a stronger penetration of the workplace by AI, it becomes apparent, comparable to the potential for change, that in most areas fears exist only in a small number of the interviewees. Job security in particular, as well as an increased

workload is hardly concerning to most interviewees (Figure 4). The situation is different when it comes to the transparency of personal data and the threat of surveillance. 50 and 40 percent of the workforce fear negative consequences in this regard.

Figure 4: Feared consequences of AI



Annotations: N=602 (employees), all values in percent.

Question: To what extent do you agree or disagree with the following statements regarding the changes in the workplace through artificial intelligence (AI)? I am afraid that... (1=do not agree at all; 5= totally agree)

Implementing AI into the workplace will affect individual population groups to different degrees. In general, the use of AI can lead to systematic problems of preferential treatment and discrimination (Kieslich et al., 2020). Therefore, it is also relevant to look at the results of the survey not only in the aggregate (across all respondents), but also broken down into individual population groups.

In terms of workload, job requirements or qualifications and job security, the socio-demographic groups hardly differ from one another. At least two key effects can be identified for the other working conditions. On the one hand, older employees especially seem to be the ones who have fears about various consequences (from the transparency of the data

used to the autonomy at the workplace). In contrast, younger workers tend to look rather carelessly at AI in the workplace. This is interesting in that the older respondents are the ones who are likely to have the least or shortest exposure to AI and the effects of AI in the workplace. At first glance, they seem to be less affected by potential risks. The respondents who are likely to have a longer working life are also those who have had more contact with other digital technologies. This can lead to less fear of contact with AI.

Furthermore, we find an effect that can be attributed to the education of the respondents: It turns out that there is no difference in fears regarding their own job security regardless of the level of education the respondents achieved.

This is curious because low-wage jobs are seen as particularly threatened by automation. However, it can be seen that people with lower education degrees in particular are afraid that social contacts will be negatively influenced by the

use of AI, or that it will lead to a diminished appreciation of their own work. Thus, they are more likely to perceive negative consequences with regard to various aspects of work than people who have a higher education.

**Table 1: Major fears of consequences of AI in the workplace by population group, in proportion**

| I fear, that...  | 18-35 years<br>(n=169) | 36-50 years<br>(n=220) | 51-65 years<br>(n=202) | Abitur or higher<br>(n=419) | Lower degree than<br>Abitur<br>(n=180) |
|--|------------------------|------------------------|------------------------|-----------------------------|--|
| ... there will be less transparency about how personal data is used    | 40 %                   | 53 %                   | 56 %                   | 50 %                        | 48 %                                   |
| ... I will be increasingly under surveillance at my workplace          | 35 %                   | 42 %                   | 43 %                   | 39 %                        | 41 %                                   |
| ... my social contacts with clients and colleagues at work will suffer | 21 %                   | 27 %                   | 36 %                   | 25 %                        | 35 %                                   |
| ... my work will be less valued - appreciated                          | 21 %                   | 25 %                   | 30 %                   | 21 %                        | 36 %                                   |
| ... I will have less autonomy in the workplace                         | 21 %                   | 25 %                   | 32 %                   | 23 %                        | 29 %                                   |

Annotation: N=602 (employees), all values in percent

Question: To what extent do you agree or disagree with the following statements regarding the changes in the world of work through artificial intelligence (AI)?

(1=do not agree at all; 5=totally agree); Shown are the percentage values for all those who indicated 4 or 5 on the scale.

## Conclusion

The results of the survey give insights into the perceptions of the population as to how the use of AI can change the workplace - a topic that is quite prominent in public discourse and is frequently accompanied by dystopian prognoses. In summary, the data show - at least from a medium-term perspective - that the majority of the workforce perceives little potential for change or that the interviewees assume rather few threats from AI.

So is AI more an opportunity or a risk with regard to the workplace? According to the assessment of the surveyed employees, it is both! Risks by AI at the workplace are seen mainly in the area of data security and in changing competence requirements. In addition, we find differentiated judgements depending on the respective aspects of work that were questioned.

An interesting result of the study is that our interviewees do not seem to perceive the fear of job loss or negative developments on the job market, which are so often portrayed and discussed in the media, as strongly as one would assume. This may be due to the time factor, considering we asked the respondents about the changes they expected within the next five years, but it could also indicate that there is a certain openness towards new technologies or at the very least no increased fear among the general population.

How can the core results of our survey be summarized? On one hand, we found that public opinion is less polarized than expected and mostly positive. Nevertheless, fears should be taken seriously and made visible. In doing so,

they can be met with more detailed explanations and information so that fears can be overcome. Justified concerns can also be discussed in order to find sustainable solutions. Moreover, the data indicate that few people have any idea of what AI exactly involves and how its technologies can affect the workplace. Against the background of the many forecasts, opinions and evaluations of experts, the current discourse on AI points to a need for more information about the opportunities and risks that the technology presents. This should eventually reach those potentially affected so that these groups can actively participate in shaping the

future of the workplace. Whether the media, professional associations and trade unions or politics itself can ensure that a problem awareness is created in the population and citizens are enabled to participate in the process, cannot be answered by this study at this point in time. However, our data show a necessary prelude to a differentiated discussion on how this complex transformation process can be shaped and how different population groups with their specific perceptions not only become visible, but how their respective outlooks, perceptions and needs are incorporated into this process.

## References

Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation?. *Technological forecasting and social change*, 114, 254-280.

Kieslich, K., Starke, C., Došenović, P., Keller, B., & Marcinkowski, F. (June, 2020). Artificial Intelligence and Discrimination. How does the German public think about the discrimination potential of artificial intelligence? *Factsheet No. 2 of the Meinungsmonitor Künstliche Intelligenz. [Opinion Monitor Artificial Intelligence]*. Available at <https://www.cais.nrw/en/factsheet-2-ai-discrimination/>

Makridakis, S. (2017). The forthcoming Artificial Intelligence (AI) revolution: Its impact on society and firms. *Futures*, 90, 46-60.

To be cited as: Došenović, P., Starke, C., Kieslich, K., Baleis, J., & Marcinkowski, F. (November, 2020). Artificial Intelligence in the Workplace. How does the German population perceive the influence of artificial intelligence on the future of the workplace? *Factsheet No. 3 of the Meinungsmonitor Künstliche Intelligenz [Opinion Monitor Artificial Intelligence]*. Available at <https://www.cais.nrw/en/factsheet-3-ai-in-the-workplace/>

We thank the Observatory for [Artificial Intelligence in Work and Society](#), a project of the Policy Lab Digital Work & Society, at the Federal Ministry of Labor and Social Affairs, for their cooperation in developing questions for the special survey.