European Commission

Joint Research Centre

SCIENCE FOR POLICY BRIEF – Labour, Education and Technology

Digital monitoring, algorithmic management and the platformisation of work in the EU

Data from the AIM-WORK survey

2025

HIGHLIGHTS

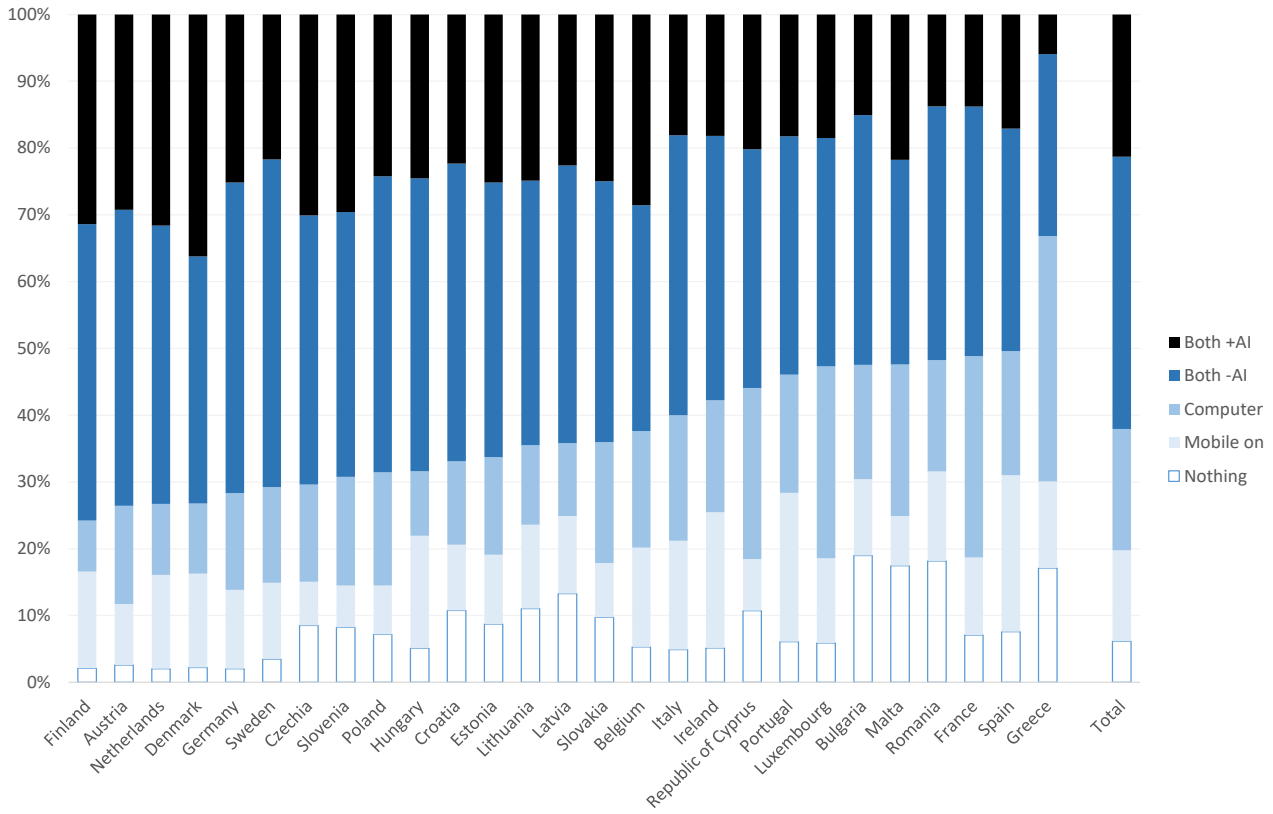
- Digital platforms and algorithms are increasingly used to coordinate work processes in traditional work settings.
- This phenomenon, to which we refer as "platformisation of work", potentially alters work organisation and working conditions but there is still little evidence on it.
- A new JRC survey offers original representative data for all Member States on the use of digital devices at work; digital monitoring and the algorithmic management of work.
- An overwhelming majority of EU workers (above 90%) use digital devices, tools and equipment to do their job. The use of AI for work-related purposes is already quite widespread in the EU.
- The automatic monitoring of working hours and the use of track cards to monitor workers' entry, exit and/or movement are the most common forms of digital monitoring in the EU.
- The prevalence of algorithmic management in the EU is significant even if relatively small, and remarkably lower than the prevalence of digital monitoring

Introduction

The digital revolution implies a profound change in the way work is organised, planned, monitored and managed. The digitisation of work processes enables the implementation of data-driven management techniques in workplaces across all sectors and areas of economic activity beyond digital labour platforms. Integral elements in these new managerial and control structures are digital monitoring and algorithmic management of work. These practices can lead to productivity and efficiency gains through a streamlining and simplification of work processes. At the same time, there is nascent evidence of a potential deterioration of working conditions and industrial relations in some cases which, while avoidable and far from generalised, requires a better scientific understanding and policy attention.

Previous JRC research has conceptualised as the 'platformisation of work' this three-pronged reality of: (i) pervasive use of digital tools in the workplace, including AI at work, (ii) digital monitoring of work

Figure 1 – **Use of digital tools and AI at work across Member States**



Source: Own elaboration based on AIM-WORK data.

entailing the use of data collected through digital devices to monitor different aspects of work and workers themselves; and (iii) algorithmic management, understood as the use of data-driven technologies to at least partially automate some aspects of the management and coordination of the workforce.

Some basic definitions

- **Platformisation of work** is the increasing use of digital platforms for coordinating work processes in all kinds of economic organisations. Digital platforms are technological infrastructures that allow multiple parties to interact with one another.
- **Digital monitoring** is any collection and processing of information based on digital tools, whether personally identifiable or not, for the purposes of influencing and managing those whose data have been garnered.
- **Algorithmic management** is the use of computer-programmed procedures (i.e. algorithms), which may be powered by artificial intelligence or not, to coordinate labour input in an organisation.
- **Artificial Intelligence or AI** is a machine-based system that operates with varying levels of autonomy, adapts after deployment and infers from the input it receives to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments.

Policy context

The Political Guidelines of President von der Leyen as well as her Mission Letter to EVP Mînzatu put significant focus on the impact of digitalisation in the world of work, notably through "an initiative on algorithmic management and [...] possible legislation on AI in the workplace, following consultation with social partners." The EU's framework to ensure that digital and AI transformations uphold European values includes the AI Act, which regulates the development and deployment of trustworthy AI, and the Platform Work Directive, which ensures transparency and fairness in algorithmic management in the gig economy. Through the Union of Skills, the EU is boosting training, lifelong learning and skills recognition across Europe. These efforts complement the forthcoming Quality Jobs Roadmap

and work on the right to disconnect, ensuring that Europe's digital transition creates opportunities while protecting fairness and social rights. Our findings suggests that the policy debate on platform work should be extended to include platformised workers in the regular work.

Measuring platformisation

Against this background, and following up on a previous exploratory survey conducted in Germany and Spain in 2022-2023 (Fernández Macias et al. 2023), the Joint Research Centre's Employment team in partnership with DG EMPL has conducted in 2024-2025 the AIM-WORK (Analysis on Impacts of Artificial Intelligence and Algorithmic Management in the Workplace) survey. The AIM-WORK survey is representative of the working age population in all Member States. The new AIM-WORK data allows an updated assessment of the prevalence and implications of digital tools usage, AI at work, digital monitoring and algorithmic management, providing an updated, comprehensive cross-country and cross-sectoral picture of the platformisation of work in the EU context.

Use of digital tools and AI in the workplace

As shown in Figure 1, an overwhelming majority of EU workers (above 90%) use digital devices, tools and equipment to do their job. The use of AI for work-related purposes is already quite widespread in the EU. On average 30% of EU workers already use it to do their job. As can be seen in the Figure, the use of AI tends to be coupled with the usage of other digital tools (20% of EU workers). Across EU countries, the use of AI at work is particularly high (above or close to 40%) in Denmark, Belgium, Netherlands, Finland and Austria. At the other extreme we find Bulgaria, Romania and Greece, with values below 20%. Furthermore, frequency of use is also quite high: around 20% of EU workers use AI at least weekly when performing their main job. On average the most frequent use of AI for work purposes is writing (accounting for 65% of all uses), followed by translation (59%), the processing of data and discussion of ideas (38%), transcription (28%), image generation (27%), planning and scheduling (24%) and customer advice (19%).
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Workers tend to evaluate the impact of AI on work rather positively.

Digital monitoring

The automatic monitoring of working hours and the use of track cards to monitor workers' entry, exit and/or movement are the most common forms of digital monitoring in the EU. Respectively 37% and 36% of EU workers are subject to these lighter forms of monitoring. Concerning stronger or more intrusive forms of monitoring, 14% of EU workers have their activities monitored through cameras, and a similar percentage is subject to internet usage monitoring. Other forms of digital monitoring have a prevalence around or below 10%.

AIM-WORK data allows the identification of three main types of digital monitoring at work:

- **Physical monitoring:** tracking and monitoring systems of the physical location of workers, either in the workplace (mostly through CCTV and sensors), or in corporate vehicles through GPS, mobile devices, etc. As seen in Figure 3, physical monitoring is a typical feature of industrial activities: it is high in transport, mining, energy, construction, utilities, manufacturing.
- **Activity monitoring:** this refers to the monitoring of activities carried out with digital tools, typical of office settings. It includes the monitoring of computer use (keystrokes, screen, or document usage), calls and e-mails, internet usage and social media profiles or online public activities. This form of monitoring is more common in office work: high levels of activity monitoring are observed in sectors with office workplaces such as finance, public administration, ICT, professional services (and also energy, which is the clearest case of high levels of both types of monitoring).
- **Time monitoring:** refers to the use of digital systems to monitor working time as well as workers' entry, exit and/or movement, for instance with track cards, which of course implies a monitoring of the time

- spent in various locations (as well as the physical presence of workers in those locations). It is quite present across different occupation types and profiles of workers per digital tool usage.

Algorithmic management

The prevalence of algorithmic management in the EU is significant even if relatively small, and remarkably lower than the prevalence of digital monitoring. The most common form of algorithmic management is clearly the automatic allocation of working time (rosters or shifts): around one in four (24%) EU workers are automatically allocated their work schedules via algorithmic systems. The automatic allocation of tasks is also quite significant, with one in five EU workers (21%) being subject to it. The other types of algorithmic management are much less frequent:

The overall picture of algorithmic management across EU Member States is diverse. It is most frequent in Spain, Poland, Ireland and Romania, where most types of algorithmic management are around or above the EU average. In Poland, for example, 40% of workers are automatically assigned their work tasks. The high prevalence in these countries could perhaps be explained by a combination of degree of digitalisation, labour market flexibility and cultural values, to be explored in further research.

Two main types of algorithmic management can be identified on the basis of AIM-WORK analysis:

- **Algorithmic direction:** this refers to the use of automated systems to allocate working time (shifts or rosters) and instructions or directions to workers, and also, to a lesser extent, work tasks and the pace of work. Algorithmic direction is most common for industrial operators and least common for elementary workers, managers and professionals. It is associated with workers who use only mobile digital tools. Algorithmic direction is highest in transport, with health and manufacturing also showing high levels.
- **Algorithmic evaluation:** this refers to systems for automatic rewarding and benchmarking of workers, and also to assign them tasks according to customer ratings. The automated allocation of work pace and the cancellation of shifts based on performance scores are also associated with this type of algorithmic management. Algorithmic evaluation is most common for clerical workers, but also quite frequent for industrial operators and service workers. It is mildly associated with the use of computers at work. Algorithmic evaluation is highest in finance, wholesale and retail, accommodation and food and ICT.

What is a 'platformised' worker?

AIM-WORK data allows the classification of EU workers by level of platformisation, distinguishing between different categories of workers depending on (i) their level of digital tool usage, (ii) the prevalence and types of digital monitoring they are subject to, and (iii) the presence of different types of algorithmic management:

- **No use of digital tools and no platformisation:** workers who use no digital tools at work. 6% of EU workers fall under this category.
- **Use of digital tools but no platformisation:** workers who use digital tools, but are not under digital monitoring or algorithmic management systems. 33% of EU workers can be classified here.
- **Partial platformisation:** workers who use digital tools and are under mild forms of digital monitoring and algorithmic management (i.e. they are subject to at least one form of digital monitoring and one form of algorithmic management). This is the largest category of all, as 42% of EU workers can be classified here.
- **Informational platformisation:** this category is a specific type of partial platformisation that, however, deserves to be characterised separately as it specifically features simultaneously digital activity monitoring and algorithmic evaluation and is typical of office work. 9% of EU workers can be classified in this category.
- **Physical platformisation** would also be a specific type of partial platformisation that deserves to stand out as a separate category. This includes workers who are simultaneously subject to digital physical monitoring and algorithmic direction, a category typical of industrial activities under which 7% of EU workers can be classified.
- **Full platformisation:** this category includes those workers who use digital tools, and are under strong forms of both digital monitoring and algorithmic management,

- meaning that they are simultaneously under all the four main types of digital monitoring and algorithmic management. 2% of EU workers are fully platformised according to this classification, using AIM-WORK data.

What way forward?

The JRC will, in collaboration with other institutions and researchers, conduct further research and analysis to fully leverage on the potential of this dataset to provide policy-relevant evidence. This will include a more detailed analysis of the impact of platformisation on working conditions across occupations, sectors and countries, looking at the factors that may mitigate potentially negative impacts. A more detailed analysis of digital monitoring, algorithmic management and platformisation by sector, countries, regions, firm size, etc is also warranted, as well as further analysis on the socio-economic profile of workers subject to digital monitoring, algorithmic management and platformisation, the relationship between different digital tools usage and the platformisation of work, and further research to understand the key drivers behind platformisation (e.g. employment legislation, subcontracting, digitalisation of businesses, industrial relations framework, etc). The impact of AI at work will also require closer attention in the near future, including to obtain new evidence on its impact on productivity, its sector, country and region-specific dynamics and its broader effects on work organisation and working conditions.

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Detailed results from the AIM-WORK survey can be found here: JRC Publications Repository - Digital Monitoring, Algorithmic Management and the Platformisation of Work in Europe.

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