Chapter 20
AI systems, risks and working conditions

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1.   Introduction

Technological change is at the core of work. Workers have been exposed to industrial automation in many forms and for many decades. Today, they are able to work in physical and digital workplaces, as well as in hybrid ones, and are exposed to AI systems in their many implementation modalities. Their exposure to and interaction with this technology are diverse and can be experienced before the beginning of the employment relationship; that is, during the recruitment and selection process, including through automated interviews and tests. Once the employment relationship has started, the exposure and interaction continue, whether it be with tools or applications such as virtual assistants and chatbots, software for task allocation, robotic machines, drones, computer vision devices, embedded algorithms, etc. Workers can work with AI systems, developing or maintaining AI; they can be managed by AI; and they interact with AI in many other ways (Lane et al. 2023).

This chapter reflects on the conditions under which artificial intelligence systems might not harm or worsen working conditions but instead contribute to enhancing and improving them. How can they be deployed and controlled to ensure this? And how can regulation, collective bargaining and other mechanisms contribute? In reviewing these questions, the aim is to seek to shed some light on the design, development, introduction and use of AI systems in the workplace.

The hypothesis is that the improvement in working conditions brought about by AI does not depend solely on the qualities of these technical systems, even if they embody by design a certain vision of society and work. It also, and perhaps above all, depends on the ability of social systems to supervise these tools and their uses so as to put them at the service of a job well done and in good conditions. In other words, the impact of AI systems on working conditions depends on the quality of the composition of the technical chain, as well as on the ability to act in the interests of human integrity, health, safety, performance and democracy in the workplace.

2.   The ambivalence of technologies and work organisations

Like digital technologies in general, AI systems are ambivalent about working conditions. As Stiegler (2015) points out, following Derrida (1972), they constitute a pharmakon: they allow poisons to become remedies and remedies to become poisons depending

on the situations and uses to which they are put. They can also serve as scapegoats.[1] In other words, they are fundamentally promising and simultaneously threatening; they can strengthen the factors that cause deteriorating working conditions alongside producing fresh approaches to managing the hazards of that decline. They may aggravate conventional occupational or organisational risks but, in trying to alleviate or sidestep these, they may create novel hazards of their own (Verkindt 2020).

For example, by facilitating the processing of large masses of data, AI opens up interesting prospects in accidentology and epidemiology. Solutions for monitoring work environments also open up prospects for detection, warning and sustainable prevention of workplace risks. The development of teleoperations and collaborative robotics does help reduce or eliminate certain types of exposure. On the other hand, by positioning themselves at the heart of the organisation, these technologies can relegate human work to the background. Their use can lead to a focus on the risks they are able to detect, leaving aside those that escape them because of atypical situations or specific organisational dynamics. Alertness tools can generate psychosocial risks and lead to the individualisation of occupational health and safety issues (INRS 2022). They can also expose workers to risks relating to the non-respect of fundamental rights, through the use of automated data processing, to prevent this or that traditional occupational risk.

These ambivalences are also reflected in workers' perception of AI. An OECD survey in the manufacturing and finance sectors of seven countries asked workers who use AI systems whether they felt it had improved or worsened their performance, enjoyment, mental health and wellbeing, and physical health and safety, as well as how fairly they felt management treated them. Workers in the finance sector reported that AI had improved their performance (79%), enjoyment (63%) and mental health (54%), either by a little or by a lot. Workers in manufacturing reported the following corresponding figures: 80%, 63% and 55%, respectively. When asked how fairly their manager or supervisor treated them, workers in the finance sector (45%) and in the manufacturing sector (43%) stated that AI had improved fairness in management. The authors highlight that these findings suggest that AI, when utilised correctly, can contribute to higher productivity and better job quality. However, the report also states that the impact on performance and working conditions depends on how workers interact with AI systems. It further points out that workers' confidence in AI depends on their degree of training, information and consultation (Lane et al. 2023).

3.   An AI-related risk mapping

In light of the rapid and continuing progress of AI, top AI researchers across the world have proposed urgent priorities for AI risk control and governance, arguing that, if managed carefully and distributed fairly, advanced AI systems could help humanity (Bengio et al. 2023). However, the downside is that, alongside their capabilities, come large-scale risks that society is not on track to handle well. The workplace can be an example of how those risks might materialise in a given context.

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1.   An explanation (in French) of the term pharmakon: https://arsindustrialis.org/pharmakon

As AI may affect all industries and occupations (OECD 2023), as well as routine and non-routine tasks, understanding its full impact on working conditions is a complex task. This section provides a 360-degree view of the possible risks that AI can produce at work. To define a comprehensive approach, these have been clustered by dimensions: risks related to organisational operations; risks related to work organisation itself; and risks related to the human dimension. The risks are not exhaustive, can overlap in time and, according to the specific context, migrate from one dimension to another.

To prevent, mitigate or eliminate risks adequately, it is key to identify the hazards arising from AI systems that can result in harm, the vulnerabilities intrinsic to an AI system and the sector-specific characteristics of a given workplace. The risk dimensions being mapped here are transversal to any organisation, but a layered analysis is helpful to a better understanding of their impacts. More specific analysis from a sectoral point of view is also needed. Knowing that risk assessment is pivotal in governing AI at work, and that new European regulations will be implemented in this regard, this section can serve as a guide to risk assessment related to AI systems at work, taking into account that the AI supply chain is complex and non-transparent with other actors, such as the developers or providers of AI systems, cloud providers and third parties, perhaps needing to be involved.

The first dimension relates to organisational operations. The AI market is not settled yet: there are many types of AI (symbolic, generative, narrow and probably general, etc.) and the adoption of AI tools is concentrated among large companies, on the one side, and 'young' firms with relatively high productivity on the other (Calvino and Fontanelli 2023). In their operations, companies adopt AI systems mainly for automation, decision-making support and to reduce staff costs, beyond concerns about the return on investment and strategic vision. The major challenges that arise are related to cybersecurity, security breaches and intrusions; privacy; data management; computational resources; and scalability. However, they also relate to meaningful automated decision-making and explainability (Bérubé et al. 2021; Dvorack et al. 2023; Shaw et al. 2019) as well as third party risks (Buehler et al. 2021).

The second dimension relates to work organisation. When attempting to modernise work and companies, the implementation of AI systems can also pose a challenge to work organisation. Work organisation is understood as the coordination and control of work, the division of work into tasks, the bundling of tasks into jobs and assignments, the interdependence between workers, and how work is coordinated and controlled to fulfil the organisation's goals (Eurofound 2023). However disruptive it may appear, the use of AI systems can refine, consolidate and complement existing managerial models such as Taylorism or Toyotaism, and processes such as productivism or extractivism, enabling companies to govern the day-to-day lives of workers in a way that is unprecedented in history (Ferraras 2023). Research by Paola Tubaro, Antonio A. Casilli and colleagues has identified and studied the impact of these systems on the working conditions of 'vulnerable' workers (Tubaro et al. 2022; Tubaro et al. 2020). The implementation of AI can radicalise power issues within the company (Ferreras 2023) and have an impact on the relationship of subordination between employer and workers (Aloisi and De Stefano 2022). By using automated decision-making and monitoring systems, usually known as

algorithmic management,[2] employers can technically govern the daily lives of workers (Ferreras 2023), while the outcomes can be biased or lead to discrimination. Chatbots can be used to communicate with workers, replacing basic human and personal interactions and rendering human communication fragmented and ineffective.

AI systems can also influence working conditions through work intensification. Generative AI[3] is used to write documents more quickly and allow workplaces to become increasingly multimodal. AI systems can expose workers to new forms of surveillance enabled by the collection and exploitation of individual and collective data in the name of performance or, sometimes, in the name of occupational health and safety or security (Ponce del Castillo and Molè, this volume). They can expose workers to their inability to define, organise and carry out quality work, infuse tacit knowledge and make informed decisions. Workers who are most affected by the implementation of AI systems may belong to the most vulnerable groups with lower power and agency (Curtis et al. 2023). And they can produce or intensify discriminatory practices (Pasquale 2015) and create further inequalities.

When working with AI systems integrated in machines, robots or cobots, besides being exposed to the risks derived from joint human-robot activities such as technical design constraints, sensing and zoning, situational awareness in relation to safety risks, malfunctions and program changes that may lead to physical injuries (Jansen et al. 2018), workers can be exposed to other risk factors such as sensory degradation or other environmental factors.

AI systems can have an impact not only on jobs, but also qualifications, skills and identities (Benhamou 2022). The skills needed to work alongside AI vary from sector to sector. Already, generative AI can perform many tasks that previously required 'social intelligence' (Frey and Osborne 2023). For automation, Acemoglu and Restrepo (2018) argue that the skills needed would be a mix of numeracy, communications and problem-solving skills. For AI and generative AI, what mix of skills do workers need to identify deep fakes, unreliable content and wrong or even malicious recommendations?

Moreover, outside the employment relationship, since AI systems can be used in the recruitment process to advertise vacancies, select candidates, filter applications and evaluate candidates (European Commission 2021: Annex III.4), the act of bringing people into a company can increasingly be left to automated decisions, rendering it a purely technical process.

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2. Automated monitoring and decision-making system, or algorithmic management, is defined here as automated or semi-automated computing processes that perform one or more of the following functions: workforce planning and work task allocation; dynamic piecerate pay setting per task; controlling workers by monitoring, steering, surveiling or rating their work and the time they need to perform specific tasks, nudging their behaviour; measuring actual worker performance against the predicted time and/or effort required to complete a task, and providing recommendations on how to improve worker performance; and penalising workers, for example through the termination or suspension of their accounts. Metrics might include estimated time, customer ratings or a worker's rating of customers (Ponce del Castillo and Naranjo 2022).

3. Following García-Peñalvo and Vázquez-Ingelmo (2023: 14) 'the general public commonly uses the term "Generative AI" to refer to the creation of tangible content (such as images, text, code, models, audio, etc.) via AI-powered tools. However, the AI research community primarily discusses generative applications focusing on the models used, without explicitly categorizing their work under the term "Generative AI"'.

The third dimension relates to the human aspect. AI systems can be deployed at a detailed level in an organisation and can make real-time 'decisions' about workers, plan and allocate tasks to them or discipline them. Working conditions could deteriorate if the tools provided reinforce strategic and organisational orientations that endanger the physical and mental integrity of workers. Robust research shows that the implementation of new technology can be associated with job strain and an increased pace of work (Jansen et al. 2018) which can result in musculoskeletal disorders (Cippelletti et al. 2023) or poor psychological health. It can create stressors – technostress – including work overload, role ambiguity and job insecurity (Atanasoff and Venable 2017; Stadin et al. 2016; Stamate et al. 2021). Researchers from Stanford University have delved into the psychological and psychosocial impacts of AI and suggest that it can contribute to a degradation of workers' autonomy and control, but also to their demoralisation and discontent (Luxton and Watson 2023) or simple boredom (Jansen et al. 2018).

Additionally, the working environment can influence the mental and physical condition of workers, with risks that go beyond working life into the personal sphere. Workers are at risk of being monitored and profiled on the basis of their behaviour, reputation, physiology, biometrics and even their 'emotions'. (For an in-depth analysis of worker monitoring and surveillance, see Ponce del Castillo and Molè, this volume.)

Preventing and managing AI-related risks in the workplace is a good opportunity to rethink the relationship between humans and technology and to avoid AI systems posing societal-scale risks: acceleration of the existing inequalities and social injustice; erosion of social stability; and a weakening of our shared understanding of reality. As leading AI scholars expressed in their joint paper for the OECD (Bengio et al. 2023), 'without sufficient caution, we may irreversibly lose control of AI systems, rendering human intervention ineffective'. The question is how to deploy AI systems in the workplace in ways that ensure social intelligence prevails and that current working conditions improve?

4. The context: purpose and conditions of use in heterogeneous workplaces

The impacts of AI systems in the workplace certainly depend on how they are conceived and developed, how they incorporate values and representations, and how they are put into practice in a specific workplace. Equally important, they also depend on how workplaces absorb them, on the context of their use, on how they are introduced and used, and on how their various components frame and regulate their design, use and effects. The issue is not only the 'black box', understood as the systems, products or services that use the computer models created by training data representing the context in which they will be used (Galanos and Stewart, this volume). The role played by institutional contexts, organisational and management models and business practices in the possible improvement or deterioration of working conditions along the entire value chain, from production to use, must also be recognised.

The objective of some AI systems is to mimic human behaviour, although they are not yet able to understand context and, hence, to reason like a human. If we take one of the traditional and general definitions, the Larousse dictionary states that such systems are a 'set of theories and techniques used to create machines capable of simulating human intelligence'. For the European Parliament, AI systems are technical systems capable of perceiving their environment, managing these perceptions, solving problems and taking actions to achieve a specific goal (European Parliament 2023). However, as research on the definition has evolved, academic literature reminds us that AI does not really replicate human behaviour, even if it gives the impression of doing so (Galanos and Stewart, this volume). Antonio A. Casilli explains that we are dealing with systems that are maintained and fed by crowdworkers organised into large geographical areas – mainly from the Global South – or, rather, into language areas (Casilli, this volume).

From a natural resource perspective, Kate Crawford (2022) explains that AI systems are alloys of minerals, sweat, tears, data, classifications and prejudices. Harry Collins (2019), on the other hand, uses the term 'artifictional intelligence' to mean that AI systems cannot (for the time being, or perhaps ever) reproduce human language in action since the latter is bound up within specific contexts and thus tacit sociocultural backgrounds of meaning.

Indeed, the technological black boxes (Pasquale 2015) that make up AI systems (especially those resulting from machine learning, deep learning and even generative AI) are often highlighted and criticised for their opacity and the power, orientations and discriminations they conceal (Masure 2019). Incidentally, if there is something specific about these new technological black boxes, it is that they are not simply opaque to the average person (as is the case with most conventional digital tools), but also to experts in the field.

However, we have to acknowledge that one black box can hide or reveal another. The reality of work and of the organisations in which AI systems are implemented also constitutes a black box. First and foremost, this is so for the designers and suppliers of these technologies who claim to be able to improve performance, and sometimes even working conditions, in organisations without these technologies being made discussable, intelligible and adaptable by all the constituent parts of the organisation and without being able to guarantee the explainability of the choices made by AI systems.

The reality of the work carried out in companies is too often overshadowed by a certain functional vision which does not correspond to that of the people who ultimately carry out the tasks or make decisions at various levels of an organisation. And even if they were better taken into account, this could continue to obscure the reality of work up and down the value chain, as well as its impact on human health and ecosystems. The technological black box reveals the black box of the organisational model and its decision-making processes which, in turn, hides the reality of work and masks the voice of workers and their representatives regarding the tools, organisation, working conditions and quality of their work (Sennet 2000). This, for its part, covers up the reality of ecosystem degradation and disguises the contributions of the non-humans

who nonetheless create the conditions for human life (Latour 2015) and human work (Friedmann 1975).

With artificial intelligence or in its absence, one cannot improve working conditions against workers or without them. If AI is to improve working conditions, then workers and their representatives must have a say in the design, development, introduction, testing, evaluation, deployment and monitoring of AI in the workplace as well as in the strategic direction of the organisational models in which they are embedded and with which they share their intelligence and labour. In summary, workers need to have an active role in the lifecycle of the AI systems to which they are exposed. This is one of the aspects discussed in the agreement on the digital transformation of companies signed by the European Social Partners in June 2020, the Autonomous Framework Agreement on Digitalisation.[4] This Agreement must contribute to ensuring that the activities that underpin and/or are supported by the development of AI do not become part of a process of deporting the problems of working conditions to the other side of the world, or of 'technological zombification' (Monnin et al. 2021); that is, technological development that contributes to the construction of unsustainable infrastructures and the degradation of the world we live in and the world off which we live (Charbonnier 2020).

5. The place and role of workers' representatives in the regulation of AI systems

When deploying AI systems at work, accountability, transparency and explainability for the employment-related decisions supported by AI are essential prerequisites (OECD 2023). To ensure that workers benefit and that their working conditions are improved when AI systems are in place, a clear and efficient regulatory framework is needed.

It is important to re-emphasise here the importance of the Framework Agreement on Digitalisation in that this has paved the way and offers points of support for various forms of implementation in the various Member States of the European Union. However, three years after it was signed, this Agreement has not yet resulted in national legislation, regulation or agreements that translate its letter and spirit into concrete actions in companies and value chains in the European Union so that the voices of workers and their representatives are heard in defence of decent working conditions and the sharing of value. It does have to be acknowledged here that workers' representatives have not, in general, recently been in a strong position to reach such agreements in a workplace setting, allowing them to regulate AI, although good examples do exist (see Rodríguez Fernández, this volume).

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4. To check the state of implementation of the European Social Partner Framework Agreement on Digitalisation, see: What's happening already at national level and how to support social partners to implement? 27 April 2021. https://resourcecentre.etuc.org/european-social-partner-framework-agreement-digitalisation-whats-happening-already-national-level

The European Commission, through its legislative programme, appears to be a powerful player in this respect even though its AI Act is not specifically designed to provide the guarantees on AI needed in the workplace; indeed, it is rather more concerned with AI on the European product market. Moreover, there is little room for employee representatives to participate and it is clear that legislation will therefore be necessary in the future when it comes to workplace applications of AI.

On the other hand, civil society actors seem to have only limited ability to challenge or contribute to regulation, whether they are human rights or civil liberties associations (such as Access Now, Amnesty Tech, European Digital Rights Network (EDRi), among others), or indeed trade unions, even though their work can be remarkable in many respects. 2023 was a year when we saw a number of leading figures in the AI industry call for the regulation of technological development, with some even arguing for a moratorium, as a means of preventing AI from endangering our societies and possibly humanity itself.[5] This communications exercise shows how the champions of innovation in the field are also making the effort to establish themselves as champions of regulation,[6] even if it means taking up all the bandwidth, or at least trying to do so. In doing this, they have developed a discourse on an ethical AI, even if built on the underpinnings of a dystopian arena, which would render these new captains of industry, in association with renowned scientists, leading actors responsible for the reliability of the programs they intend to make openly available.

Mapping the different regulatory arenas for AI (Benbouzid et al. 2022) shows that regulation has become a competitive field in which workers' representatives are struggling to make themselves heard.

The polarisation is no longer between the proponents of innovation and the proponents of regulation. Innovation players have taken over the regulatory arena, to some extent dispossessing workers' representatives of their preferred space. The landscape of AI regulation, understood as the social control of AI, as set out by the authors in this volume, reveals different regulatory regimes but, above all, a certain transformation of the rules of the game and the balance of power.

That said, the role of workers' representatives in preserving if not improving working conditions, recognised as such in national legislation or practice regardless of whether as trade union representatives or as elected officials, as stipulated in ILO Convention 135, remains important. There is an abundance of academic literature on the role of

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5. See the open letter 'Pause Giant AI Experiments: An Open Letter', published on 22 March 2023 by the Future of Life Institute https://futureoflife.org/open-letter/pause-giant-ai-experiments/

6. Some examples of the various interviews and press releases of AI developers related to the governance and regulation of AI are as follows: Shariatmadari D. (2023) '"I hope I'm wrong": the co-founder of DeepMind on how AI threatens to reshape life as we know it'. Interview, The Guardian. https://www.theguardian.com/books/2023/sep/02/i-hope-im-wrong-the-co-founder-of-deepmind-on-how-ai-threatens-to-reshape-life-as-we-know-it; Yun Chee (2023) 'Exclusive: EU's Breton to discuss AI rules with OpenAI CEO', Reuters. https://www.reuters.com/technology/eus-breton-meet-openai-ceo-san-francisco-june-eu-officials-say-2023-05-30/; Zakrzewski et al. (2023) 'Tech leaders including Musk, Zuckerberg call for government action on AI'. *The Washington Post*. 13 September. https://www.washingtonpost.com/technology/2023/09/13/senate-ai-hearing-musk-zuckerburg-schumer/

workers' representatives which should serve as a point of reference for taking a stand in this context of change. Representatives of workers are needed most of all to ensure that AI systems are designed, developed and used responsibly in the workplace. To do this, in addition to their traditional role and within the frame of reference that is labour law, they must also take on aspects relating to the use of data – especially personal data – in organisations and must rely, at the very minimum, on the GDPR given the current state of legal support.

At company level, knowing their working environment, they can use access to expert and non-expert knowledge to identify risk of harm signals, particularly where there is a multiplicity of technologies converging in work processes or in the use of AI (generative or otherwise) for certain tasks. They can also play a key role in impact assessments, whether they be occupational health and safety risk assessments, data protection impact assessments under the General Data Protection Regulation or fundamental rights impact assessments. They can thus play a key role in identifying abusive practices as they are relevant players in helping to clarify privacy and data protection rights within workplace organisation.

To achieve this, workers' representatives need to be able to train and update their frame of reference, as well as promote and participate in experiments in other ways of effectively, safely and democratically integrating AI systems into work organisations. They must also be able to train (and not just in law, but also in design, management, sociology and other disciplines) and acquire the skills to understand how AI systems work. This will allow them greater opportunity to influence them so that they can contribute constructively to the decisions, actions and projects likely to give birth to a trustworthy AI.

But it is not all about the company. Far from it. It is also in the interests of the organisations of workers' representatives to articulate in a better fashion the different scales involved: from the shopfloor to the company, from the company to the group, to the territory, to the sector, to the industry, to the national and transnational levels. Only if workers' representatives know better how to combine professional, multi-professional, organisational and institutional logics will they be able to forge new alliances to have a greater say in the regulation of AI.

6.   Conclusion

AI is a game changer for the world of work in that it not only challenges the way work is organised, and how workplaces are equipped to produce goods and services, but also the way in which workplaces are structured to produce quantities and qualities of jobs and work. The design, development, deployment and use of AI systems therefore raise numerous challenges for workers' representatives. This volume focuses on issues relating to the working environment at large in the attempt to show that analysing the consequences of AI systems for working conditions is inherently complex. Moreover, these consequences are also contextual and inseparable from the ability of workers' representatives to influence the direction of technical systems and the organisational

models in which they are embedded, and which they may either act to reinforce or to weaken. Thus, in seeking to challenge the omnipotence sometimes attributed to AI systems, whether beneficial or harmful to working conditions, the contributions in this volume highlight the relative weakness of workers' representatives when it comes to regulating AI systems in work organisations and their relative relegation in the face of market forces, science and industry in particular.

We would like to conclude by discussing two aspects of AI's game-changing character for the world of work.

First, many of the difficulties encountered in the deployment of AI systems in work organisations are similar to those already encountered with other types of new technology. The difficulties are expressly similar when it comes to the design and development of such projects, and also their management. Workers and representatives are mobilised only too late, at the end of the process, and are barely involved in project orientation whether on the scale of company projects or on the scale of structuring programmes for sectors or industries. From this point of view, if nothing changes in the way AI systems are deployed, there is a strong likelihood that organisations will come up against the same pitfalls as before and that AI systems too will fail to live up to all the promises they make, both in terms of their contribution to improving organisational performance and to improving working conditions within these organisations. Paradoxically, however, the complexity of this type of technology, and the high stakes associated with it, may lead us not only to raise the bar in project management, thereafter to recognise the need to improve the skills of those who design and deploy AI systems in organisations by bringing them closer to the realities of work, but also to place a much greater value on the role of workers and their representatives in the success of transformation projects.

Second, whilst a certain number of working conditions issues associated with the deployment of AI systems falls within the scope of classic project management practices, AI systems do, however, place more specific pressure than other digital technologies on issues linked to decision-making in work organisations. Indeed, insofar as they simulate human cognitive capacities, they compete with the ability to tell, to read, to see, to recognise, to translate, to organise, etc., as well as with the ability to decide. This is why automated decisions are governed by the GDPR and why the place of working men and women is the subject of such intense attention from the social partners. Although AI systems do not replace decision-makers, they are supposed to help them to decide, and to decide better; it being understood that this 'deciding better' would in fact be more realistically read as 'deciding more justly, because more objectively and more rationally'. In this way, they help to reinforce the idea that decisions are, and/or should be, as rational as possible in order to be as fair as possible.

This perspective is perhaps debatable. Deciding, or justly deciding, is not just a cognitive process, but a rational one. Decisions, like indecisions, are sociopolitical gestures, sometimes passionate, sometimes unreasonable, with limited rationality or with plural rationalities. If AI seeks to surpass legal normativity with a social normativity that it is capable of bringing to light by exploiting vast datasets, and thus to compete with the law in saying what the right rule or the right decision should be, it should not be the case

that, in depoliticising the decision through sub-political techniques, it participates in depoliticising work, organisations and working conditions themselves. Moreover, at the same time neither should it deprive the possibility of the collective determination of the conditions that not only enable work to be carried out, but which are also ameliorated by work.

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