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# ALL EYES ON AI:

## TACKLING DIGITALISATION AND ARTIFICIAL INTELLIGENCE IN THE WORKPLACE

Summary

## Introduction

### A new technological revolution?

Technologies have the power to reshape the world we live in, by transforming production methods, the way businesses are organised, and social practices and relationships. From this point of view, AI also has all this potential. However, it is important to bear in mind that artificial intelligence is not a single technology, but rather a set of technologies that form part of a vast movement that can be described as digitalisation.

### Escaping technological determinism

As with any technology, fatalism or a certain form of determinism need to be avoided. Technology is not neutral, but everything depends on how it is used. Techno- logy is capable of both the best and the worst. At once a tool of surveillance and control appreciated by dictatorships, it can also be a tool of emancipation, protecting us from inquisitive eyes and encouraging the organisation of social movements.

Generative AI is particularly spectacular because of its speed of adoption. What's more, it has been made open source very quickly, which encourages its use, its dissemination and the development of new uses. In fact, it is much more accessible than other technologies.

### AI at the heart of a new battle for domination

AI is considered to be an advanced technology with a wide range of uses, including military applications. A race for leadership has been launched between the United States and China, while Europe is trying to catch up. The United Sates has banned exportations on AI along with other advanced technologies such as semi- conductors and Quantum computing. Europe, on the other hand, is ahead of the game in its attempts at regulation. This is one of its strengths.

### Understanding the whole AI value chai

Like wireless networks or cloud computing, AI is not an intangible, ethereal technology, even though a lot of marketing is suggesting the opposite. On the contrary, it relies on a very real, physical infrastructure made up of cables, routers, racks, bays, servers, thermal management systems, and so on: all equipment designed and manufactured by industrial companies. AI is also fed by battalions of invisible and very poorly paid «click workers». Industry and digital labour are both blind spots when it comes to AI. It is important to remember this.

**AI and Employment**

The difficulty in predicting the impact on future employment of the widespread use of artificial intelligence in companies stems from the fact that it is impossible to know exactly how artificial intelligence's learning capacity will develop. Is artificial intelligence just a super-powerful synthesis tool, or will it be able to perform new, original and difficult tasks, and produce answers based on reasoning? The number of jobs 'at risk' depends on this development. The most recent studies differ widely.

AI is already bringing, and will continue to bring, colossal productivity gains, and therefore a surplus of added value, although they are difficult to measure today. The question is how these gains will be distributed, between sectors, across the value chain, and above all between capital and labor.

There are two ways in which companies can increase the value they produce. On the one hand, costs can be optimised by speeding up processes and automating tasks. But gains are also made in terms of sales: higher product volumes, customised offerings, innovative solutions.

In industry, the gains would be greatest in the high-tech sector ($240 to $460 billion), followed by the basic materials sector ($120 to $200 billion), the electronics and semiconductors sector ($100 billion to $170 billion), the chemicals sector ($80 billion to $140 billion), the pharmaceuticals and medical products sector ($60 billion to

$110 billion).

If productivity gains outpace the creation of new jobs and wage increases, and in our current context of corporate concentration, they will be captured by capital to the detriment of labor. Work needs to be done to ensure that these gains will be fairly distributed within each company.

The massive deployment of generative artificial intelligence is already redistributing valuations between sectors, and there could be major upheavals ahead. In particular, outsourcers whose activities are perceived to be susceptible to automation could see their share prices fall sharply. For example, the share price of Teleperformance, the world leader in outsourced customer relationship management, has fallen by more than 50% since February 2023, due to the possible replacement of telephone advisers by chatbots.

The question lies between the different sectors. A polarisation is emerging between sectors where productivity will increase rapidly, leading to wage increases (but possibly a reduction in the volume of employment) and improved working conditions (for workers whose tasks have not all been automated), and sectors where productivity gains will be minimal and wage conditions worse.

The polarisation of employment by generative AI and the widening of social inequalities will be all the more marked as the jobs maintained and increased by AI are those with the highest level of education and median income. The jobs most affected are those at intermediate levels. In addition, women are more represented among vulnerable jobs, particularly in administrative professions, and gender inequalities could also increase.

Workers are aware of the risk that job polarisation introduced by AI may degrade their purchasing power and express their concerns. According to a 2023 OECD6 study conducted in seven countries in the industry and finance sectors, twice as many employees believe that artificial intelligence will lead to decreases in their pay compared to those who believe it will result in an increase.

Polarisation in Europe could also spread between different countries. Generative AI creates a development gap by favoring high-income countries, where the potential for automation and augmentation is greater, leading to a gap in productivity gains. In addition, infrastructure constraints such as costly access to broadband connectivity and electricity are holding back the spread of generative AI in low-income countries.

**AI and Work**

The introduction of AI technologies questions the reciprocal places of human labour and machine/automat- ed/AI labour.

- Are humans working with AI technologies at a compatible rhythm?
- Is machine labour completing/reinforcing human work?
- Are they both mutually working together?

AI investments in the industry tend to come in the form of small modules of AI technologies, which are more easily applicable to modern manufacturing facilities than monolithic systems. Dr. H. Van Dyke Parunak calls it “Distributed Artificial Intelligence in Industry”:

- AI Investments come in the form of modules, distributed along the line of the production chain.
- Implementation of those technologies tends to come step by step: from automation to data collection, to data analysis, etc.
- Those modules, coming as an add on, continuously question the compatibility of those technologies with one another. Are those technologies able to communicate with one another effectively? Are AI providers able to coordinate their activities with one another?

**Industry at the hear of AI**

AI requires real infrastructures. From this point of view, industry lies at the heart of AI. This is undoubtedly one of the blind spots, along with energy consumption and the so-called “click workers”.

If we try to retrace the path that enables us to obtain results following a query to a generative AI, we can mention the following stages:

1. Data acquisition: Collection of raw data from various sources such as sensors, IoT (Internet of Things) devices, databases, social media, etc.

2. Data pre-processing: Cleaning, normalising, and preparing data to make it usable by machine learning algorithms.

3. Data mining: Exploratory analysis to discover trends, patterns and relationships hidden in the data.

4. Modelling and machine learning: Development, training, and optimisation of machine learning models to solve specific problems, such as classification, regression, clustering, etc.

5. Model evaluation: Evaluation of model performance against specific metrics, using separate test datasets.

6. Model deployment: Integration of models into production systems for real-time prediction or classification.

7. Monitoring and maintenance: Continuous monitoring of the performance of deployed models, detection of failures and feedback to improve performance.

8. Interpretation of results: Understanding and interpreting model results to make informed decisions and iterate on the machine learning process.

But behind these various stages of data processing, hardware and software infrastructures are required.

The data centres (DCs) used by the major cloud players contain a wide range of equipment:

- Racks and servers (Dell, HPE, etc.)
- Power management equipment (Vertiv, ABB, Schneider, etc.)
- Thermal management (Arrow Electronics, Schneider, Siemens, Vertiv, etc.)
- Switches and routers (Cisco, Nokia, Juniper/HPE, etc.)

These companies, which are very much part of industry, are in a special position: they contribute to the development of the infrastructure needed for AI and, more broadly, for

digital transformation. What's more, they themselves are using these tools internally to improve their processes, R&D, and so on.

**AI requires chips and data centres. In either case, the massive use of AI raises questions about the energy transition.**

Chip production poses problems in terms of energy consumption, waste recycling and water consumption. It seems that the chip industry is not at all on track with the Paris Agreement on climate change. On the contrary, growth prospects for the chip industry appear to be on a steep, upward trend.

Another blind spot when it comes to AI is that of click workers or micro-workers. Data does not exist in nature in its raw state. It's the work of these invisible workers that produces it. As Antonio Casilli[2] explains, automation work and artificial intelligence are only possible thanks to workers performing micro-tasks paid a handful of cents. These workers can be found in India or Kenya for the English-speaking world, or in Madagascar for the French-speaking world.

We're talking about a material activity, but one that aims to prepare data to feed artificial intelligence. It's invisible work, but it's real, and we can't do without it. Evoking this type of work helps demystify the quasi-magical character often attributed to AI systems and shows that AI is in fact based on human labor - a lot of human work.

Speaking of invisible work, other forms of work, less precarious, within companies say recourse to AI but just as invisible can be mentioned. When an AI is acquired and implemented, some activities are required to ad- just, customise, maintain, or optimise the AI. Otherwise, the AI will not perform as expected. This is also invisible work not yet recognised.

Generally speaking, there is a lack of recognition for AI supervision work (time allocation, recognition of implied skills, etc.).

**AI and the oil and gas sector**

| Impacts of AI introduction in the oil and gas industry | Jobs impacted | Job number | Work content | Working conditions |
|---|---|---|---|---|
| Exploration and development | • Geologists, geophysicists, petrophysicists, reservoir and geo-information engineers | *Unidentifled* | • "Low-value and manual analytics work" decrease | *Unidentifled* |

| | | | | |
|---|---|---|---|---|
| Precision drilling | • Rig personnel<br>• Drilling engineers<br>• Geosteerers<br>• Drillers | Need for human intervention decrease | • "Low-value and manual analytics work" decrease<br>• Repetitive tasks decrease<br>• Replacement of physical conduction of drilling processes by supervision | • Safer drilling |
| Predictive maintenance | • Maintenance operators<br>• Operations team in the control room and on the ground<br>• Executives at headquarters in charge of overseeing daily operations | *Unidentifled* | • Remote monitoring<br>• Need for manual intervention decrease | • Decrease in the need to send workers out in difficult conditions |
| Production and operations | • Engineers | *Unidentifled* | • "Low-value and manual analytics work" decrease | *Unidentifled* |

## AI and the pharmaceutical sector

Syndex (2024), Job impacts of AI introduction in the pharmaceutical industry overview

| Impacts of AI introductionin the pharmaceutical industry | Jobs impacted | Job number | Work content | Working conditions |
|---|---|---|---|---|
| Research and early discovery | • Scientists, researchers | *Unidentifled* | • Information extraction and summarisation automation<br>• Need for physical intervention decrease through in silico technology | *Unidentifled* |

| | | | | |
|---|---|---|---|---|
| Clinical development | • Clinical development teams<br>• Medical writers | • Need for human intervention decrease for regulatory interactions | • Decision-making support<br>• Need for physical intervention decrease through digital twin technology<br>• Clinical-study report writing support | *Unidentifled* |
| Sourcing, manufacturing, quality and supply chain | • Category managers<br>• Manufacturing supervisors<br>• Maintenance operators<br>• Manufacturing deviation investigators<br>• Inventory and demand planners | • Need for manual intervention decrease | • Information extraction and summarisation automation<br>• Monitoring and risk management support<br>• Deviation report writing support | *Unidentifled* |

**AI and the automotive sector**

The automotive sector is facing huge challenges due to the technological changes that are going on, even though it has been using automatisation for decades. The digitalisation of this sector is therefore nothing new. The move towards electrification and autonomous vehicles has accelerated the use of electronics and software. Electronics now plays a major role in a car. It re- presents a growing part of the value of a vehicle. While the use of AI is a more recent phenomenon, it has many areas of application in the value chain.

Many automotive groups have begun to collaborate with high-tech groups. In parallel, they have also organised themselves with AI Labs, internal incubators or the set-up of internal software divisions. And, since 2023, many groups in the sector have made announcements regarding their use of AI. Some of them are even making acquisitions of start-ups to boost their internal capabilities in AI. Stellantis, for instance, has made at least two acquisitions in that field since December 2022. It has also launched an incubator to advance its move towards AI.

In the future, digital products based on artificial intelligence will play a key role, as stated by the Volkswagen Group. It enumerated several fields: “New infotainment and navigation applications, high-performance speech recognition, extended vehicle functions and the deep integration of digital ecosystems in the car”. The carmaker has recently announced the intro- duction of generative AI in the second quarter of 2024. Mercedes and DS had already made similar announcements. Ford has been working on

the possibility of using AI for a while. But this list is not limited. Many other usages can be found.

**Training of AI and bias**

AI simply presents the results of calculations and data collected, at some point at least, by humans. Consequently, algorithms «reflect and deal with the human biases that are built in when they are programmed, when they process data and when humans interact with them.»1 Cognitive biases are repeated patterns of thought that lead to inaccurate and subjective conclusions.

Biases in the training data can be reflected in the output of the models, leading to discriminatory or unfair results. The lack of contextual understanding and empathy limits the ability of systems to handle sensitive human interactions.

In companies, biases concerning one area of AI can have deleterious effects on employees: algorithmic management (see below).

The use of AI in management can also lead to wage dis- crimination, particularly in the case of platforms. While this still mainly concerns non-salaried workers, we need to be vigilant about the possible spread of this type of model within companies. Uber is a case in point, with its dynamic pricing system: the initial price offered to drivers - and disconnected from the price paid by the customer - can vary greatly for the same journey, de- pending on an algorithm to which the drivers have no access, and which analyses the drivers' behavioural data in particular. Veena Dubal, professor of law at the University of California, has described this dynamic pricing policy as "algorithmic wage discrimination".

**Legal Framework**

**The AI Act**

The legislation will apply to both suppliers of AI solutions and users deploying them. The approach adopted is a risk-based one, with graduated obligations depending on the level of risk.

At the top of the pyramid, the systems with risks considered unacceptable because they infringe fundamental rights will be prohibited. They include in particular: social rating by governments, the exploitation of child- ren's vulnerability, the use of subliminal techniques and subject to strictly limited exceptions - the use by law enforcement agencies of certain biometric identification systems in real-time and at a distance in places accessible to the public. Deducing emotion in the workplace is also forbidden.

Secondly, AI systems presenting risks identified as high because of their potentially negative impact on the rights of individuals. The list of these systems may evolve over

time. They are classified in two categories, and the employment and management of workers are included:

- “Systems used as a safety component of a product or falling under EU health and safety harmonisation legislation (e.g. toys, aviation, cars, medical devices, lifts).
- Systems deployed in eight speciflc areas under Appendix III (...).
- Biometric identiflcation and categorisation of natural persons.
- Management and operation of critical infrastructure.
- Education and vocational training.
- Employment, worker management and access to self- employment.
- Access to and enjoyment of essential private services and public services and benefits.
- Law enforcement.
- Migration, asylum, and border control management.
- Administration of justice and democratic process.”8

Providers of AI systems concerning the employment and management of workers will be subject to prior obligations, including an ex-ante conformity assessment. This includes AI systems used to hire or select people, ana- lyse and filter candidates. AI used to make decisions on advancement, layoffs or working conditions, or assess people, are also included in this category.

The third category concerns systems whose risks are considered limited, such as chatbots, emotion recognition systems, biometric categorisation systems, or those

that generate images or videos. They are not considered as high-risk, and only a transparency requirement is requested; the users need to be aware that they are interacting with a machine.

Finally, the last category concerns systems with minimal risks. For these, no additional legal obligations are required. This category encompasses most of the AI systems currently used in the EU.

**The Platform Work Directive and AI**

Although this Directive only concerns platform workers, estimated by the European Commission to be more than 28 million in Europe in 2021 (and with a forecast of 43 million in 2025) for 500 platforms, Chapter III of the Directive provides an important framework for algorithmic management.

In this chapter, 9 articles provide a framework for algorithmic management:

**•Article 7:**

-Platforms will be prohibited from processing certain types of personal data, such as personal beliefs, health data, data concerning emotional state, and private exchanges with colleagues and workers' representatives.

**•Article 8:**

-When processing personal data, an impact assessment must be carried out. Moreover, "Digital labour platforms shall provide the assessment to workers' representatives".

**•Article 9:**

-The employees concerned and their representatives must be informed of the use of algorithmic management systems, as well as their purpose, the category of data used and their evaluation. Employee representatives must be given this in- formation before such a system is implemented. This also applies to those undergoing recruitment procedures, if such a system is used.

-Finally, employees must have access to personal data formulated by the recipient of the service with regard to their work and the way in which an employee's behaviour affects the decisions taken by automated systems.

**•Article 10:**

-This is undoubtedly the Article with the most significant advances, with:

-the obligation to have a human supervision of algorithmic management systems, an assessment of their impact on working conditions and the involvement of workers' representatives, who must have access to these assessments.

-and above all, the prohibition of decisions taken solely by an automatised tool concerning the suspension, restriction or termination of workers' contracts. Such decisions must be taken by a human being.

**•Article 11:**

-Platform workers must be able to obtain explanations of the reasons for decisions concerning them taken by such systems within a reasonable time: a contact person must be designated. Individuals must have the right to request a review of these decisions and the platform must respond within 15 days. If decisions infringe people's rights, the platform must correct them without delay or provide compensation and take the necessary steps to ensure that this does not happen again.

**•Article 12:**

-Platforms are obliged to assess the impact of algorithmic management on workers' health and safety (risks of accidents in the workplace, psychological and ergonomic

impact) and to introduce appropriate preventive measures. Employee representatives must be informed and consulted. Algorithmic management systems that put workers under pressure or risk their safety or mental health are prohibited.

**•Article 13:**

-This Article provides for the possibility of recourse to an expert to help formulate an opinion, the cost of which is financed by the platform for platforms with more than 250 employees in a Member State. The Member State must lay down the arrangements (frequency in particular) for this possibility.

**•Articles 14 and 15:**

-These Articles provide for employees to be informed directly if there are no employee representatives.

This Directive is an important step for platform workers. It makes it easier for these workers to be recognised as employees. It also includes some interesting aspects on algorithmic management. However, it does not exhaust the subject. But many of the Directive's provisions could form the basis of a directive on algorithmic management.

**Key takeaways and recommendations**

1.AI is not something totally new, despite its spectacular nature. AI is not a single technology, but a constellation of technologies.

2.AI has become extremely visible and popular since 2022, due to the development of generative AI. Free or almost free access to this technology has multiplied its potential and possibilities.

3.The current enthusiasm should not mask the fact that a speculative bubble is at work when we look at the huge amounts being invested in AI.

4.Another point worth emphasising is that AI conceals several blind spots:

- It requires a lot of human labour, which is largely invisible, fragmented and poorly paid; and this human labour is actually on the increase.

- It also requires physical infrastructure: chips, data centres, cables, etc.

- It also consumes a lot of energy, to the point of jeopardising the decarbonisation of certain digital giants.

5.The impact of AI on employment remains a question. Between the catastrophism of some and the optimism of others, it's not easy to make up one's mind. AI might boost productivity, but results are still too fragmentary to be conclusive. But it's safe to say that the upheavals are already numerous and are not likely to stop any time soon. It's

worth remembering, however, that a dozen years ago, the very pessimistic predictions proved to be wrong. Even so, this does not bode well for the future.

6.Another factor to consider is that AI as a technology is not neutral. And as such, its consequences depend on how it is implemented, hence the key role of unions and workers' representatives. In other words, technology can be shaped to meet needs, even if the temptation is often the opposite, to adapt humans to technology.

7.While the wave of automation has largely exposed blue-collar workers and relatively few white-collar workers, it seems that with AI, things are different according to several studies by the OECD and ILO. With AI, white-collar workers would be more exposed.

8.AI is transforming not just jobs but work itself. AI is helping to change the way we work. But also, its organisation and its content. And once again, AI is proving ambivalent in its consequences for work. It can be used to replace a human. It can also relieve them of certain tasks, or even help them ("the augmented employee"). For their part, employees themselves are uncertain about AI. They may be wary, afraid or, on the contrary, embrace it. The deployment of AI can also bring to light some of the work carried out by employees that was not previously visible. AI can also bring work intensification. Again, it really depends on how it is implemented and with which goals.

9.Looking at four industrial sectors - automotive, oil and gas, pharmaceuticals, and telecom networks - we can see that AI is already being used in all of them, sometimes for many years. AI covers more and uses cases all along value chains, from R&D to after-sales and maintenance. More and more functions are using AI.

10.And what is also apparent is that employees and even employee representatives are not necessarily aware of the presence of AI within their company. What's needed is a real effort to get people on board. There is a strong tendency for companies to skip their legal responsibilities or to comply with them too late. And this is happening even in countries where social dialogue is usually deemed good quality.

11.The GDPR and the AI Act are important steps and interesting points of reference. It is regrettable that these major texts do not include sufficient provisions to enable employee representatives and trade unions to influence the introduction of AI within the company. But unions and workers representatives can use many provisions to get information and try to be where things are being discussed.

12.Involvement of workers' representatives, as far upstream as possible, with approaches such as social design, professional/technological social dialogue, would increase the possibility of influencing company choices.

**Recommendations:**

Employees and workers' representatives need training to understand the issues at stake regarding AI. Particular attention needs to be paid to the use of algorithms in management. HR management and recruitment have been classified as 'high risk' in the AI Act.

Workers' representatives should also become familiar with many provisions of both the GDPR and the AI Act.

as they provide interesting levers to get information and question what is being done.

The legislation should be improved to favour the possibility to include workers' representatives in the loop. There are many aspects (transparency, explicability, risk assessment, supervision, governance, certification pro- cess, etc.) where Works Councils should be involved.

-Being part of the governance and the supervision

-Being consulted when there is something new

-Being informed on a regular basis

Labelling tools: there is a need of a trusted third party to guarantee a lack of bias/discrimination.

Companies should favour experimentation before any implementation. This would give a chance to test the technology and to make an assessment with employees and employees' representatives being involved in the discussion. This could bring a more developed social dialogue, which can be called professional or technolo- gical social dialogue.

Information and consultation must begin at the earliest stage, ideally when the options for technological choice are still open, and at the time of experimentation; and these information and consultation processes should be adapted in case of the introduction of new AI tools or AIS in order to take into account the continuous evolu- tion of these technologies.