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'NON-HUMAN' EMPLOYERS AND ALGORITHMIC MANAGEMENT

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Abstract:

Technology is changing the way that businesses manage their staff. Many employers have in fact begun to divest themselves of the completely human exercise of their powers, delegating all or part of them to relatively intelligent machines for the management of human resources (shifts, production times, job descriptions, recruitment, employee evaluations and even dismissals). These are algorithmic management tools capable of making automated decisions that heavily impact on the workforce. While there are advantages in terms of increased labour productivity, the use of technology is not always risk-free. Suffice it to refer, in the field of human resources management, to the impartiality of algorithms. The problem is often exacerbated by the lack of transparency that distinguishes a large part of automated decision-making processes. For this reason too, it has been pointed out that workforce analytics and algorithmic management practices can lead to an unprecedented extension of employer prerogatives. It has also been argued, especially in the debate on the subject at international level, that this would require an update, if not a rethink, of the labour law framework which, at present, may prove to be ill-equipped to cope with the ongoing technological revolution.
The purpose of this paper is therefore to start a debate in order to understand whether Italian labour law already possesses the regulatory antibodies capable of preventing an unwarranted abuse of employers' powers potentially arising from the ever-increasing recourse to algorithmic management*.

1. Foreword and definitions

It has already been written in many quarters that technology is changing the way that companies manage their personnel. Decisions that used to be taken directly by human beings are increasingly being delegated to digital managers. The phenomenon, dubbed algorithmic management, consists in delegating decisions on the organisation of the workforce, in whole or in part, to non-human agents capable of

improving productivity as well as maximising processes and resources, at least in theory[1].

Before addressing the topic more specifically, it seems appropriate to give a definition of algorithm, the one that can be found in the encyclopaedia of the AI era: Wikipedia. An algorithm is a "finite sequence of mathematically rigorous instructions, typically used to solve a class of specific problems". According to this definition an algorithm must be: finite, i.e. made up of a finite number of instructions and directed to an end; deterministic, i.e. starting from the input data, it must be possible to obtain the same results; unambiguous, i.e. the operations must be able to be interpreted in the same way by everyone, even if the executor is different; and general, i.e. the solution must be the same for all problems of the same class.

But is it also possible to give a legal definition?

In the broad and complex context of information and communication technologies (ICT), artificial intelligence (AI) represents a subset that, thanks to recent regulatory measures, now has a precise legal definition at international and European level. Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024, published in the Official Journal of the European Union on 12 July 2024,[2] defines an AI system as "a machine-based system that is designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments" (Article 3, paragraph 1, point (1)). This definition reflects that contained in the OECD Recommendation on AI and the Council of Europe Framework Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law of 17 May 2024[3].

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[1] V: BARBIN, BOROWCZYK, CHABERT, GUILLEMOT, MICHEL-PAJUS, DJEBBAR, MARTZLOFF, *A history of algorithms: from the pebble to the microchip*, Springer, 2012 and MATEESCU, NGUYEN, *Algorithmic management in the workplace,* in *Data soc.*, 2019, 2, 1 and CAMBON, HECHT, EDELMAN, ET AL., *Early LLM-based Tools for Enterprise Information Workers Likely Provide Meaningful Boosts to Productivity. A first update from Microsoft's research initiative on AI and Productivity*, Microsoft Technical Report, 2023, https://www.microsoft.com/en-us/research/uploads/prod/2023/12/AI-and-Productivity-Report-First-Edition.pdf. The study shows that AI enablesworkers to complete tasks faster and produce higher-quality work. On topic, see also, DELL'ACQUA, MCFOWLAND, MOLLICK, et al., *Navigating the Jagged Technological Frontier: Field Experimental Evidence of the Effects of AI on Knowledge Worker Productivity and Quality*, in *Harv. bus. school WP*, No. 24-013, September 2023.

[2] On which CIUCCIOVINO, *Risorse umane e intelligenza artificiale alla luce del regolamento (UE) 2024/1689, tra norme legali, etica e codici di condotta*, in *Dir. rel. ind.*, 2024, 3, 573.

[3] The convergence between the EU definition and that of the OECD responds to wide-ranging political and regulatory needs, aimed at guaranteeing legal certainty and fostering international convergence on the adoption of common AI rules. The Regulation has a wide scope, binding not only suppliers of AI systems established in the EU but also those located in third countries, where the output produced by AI systems is intended for use in the EU (Article 2). This approach is consistent with the intention to regulate AI in a global manner, reflecting the growing interconnection between digital markets and worldwide jurisdictions.

A crucial aspect of the Regulation is the distinction between AI systems and traditional software systems. As clarified in Recital 12, systems that use rules defined exclusively by natural persons to automatically execute operations do not fall within the definition of AI. In essence, AI systems are characterised by their inferential capacity, which distinguishes them from traditional automated systems based on predefined rules. AI is distinguished by the ability to learn, reason or model through machine learning techniques, which allow systems to evolve progressively, adapting to defined data and objectives.

What characterises an AI system is the level of autonomy in the generation of output independent of human intervention, a characteristic that introduces a certain degree of unpredictability into the results[4]. A distinction is drawn between deterministic systems, which produce predictable results, and non-deterministic systems, whose output is more unpredictable due to autonomy and continuous learning. Therefore, not all automated systems can be considered AI, as the term "automated system" has a broader scope, including traditional software without inferential and self-learning capabilities.

The intrinsic characteristics of AI, such as inferential capacity and decision-making autonomy, constitute the most disruptive aspects from a technological point of view and raise concerns about the protection of the rights of persons impacted by the use of such systems[5]. Indeed, the capacity for progressive adaptation, which enables AI systems to modify their behaviour without human intervention, requires special attention at regulatory level in order to strike an appropriate balance between technological innovation and the protection of fundamental rights.

Accordingly, the legal notion of IA, by now defined at international level, is poised to constitute the main reference point for the application of EU law on the subject. Through its uniform and harmonised definition, Regulation (EU) 2024/1689 aims to create a solid regulatory framework for the production, marketing and use of AI systems within the European Union, with potential implications also at a global level.

If at this juncture the characteristics that come to mind are *neutrality* and *objectivity*, this is hardly surprising. If management by means of algorithms really did ensure objectivity and neutrality in the decision-making processes that take place within work organisations, one could justifiably consider it an even preferable alternative to the discretion that characterises a large part of those processes. However, this is not the case: the reasons why and the problematic aspects of these processes will become clear in the course of this work, analysing the EU law stemming from the 2024 EU Regulation mentioned

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[4] On the issue, see: RAGHAVAN, BAROCAS, KLEINBERG, LEVY, *Mitigating Bias in Algorithmic Hiring: Evaluating Claims and Practices, in Proceedings of the 2020 conference on fairness, accountability, and transparency (FAT*)*, 2020, 469 ff.; BRUNERV, CECCON, HOLUBOVÁ, ET AL., *Collective bargaining practices on AI and Algorithmic management in European Services sectors*, Friedrich-Ebert-Stiftung, 2024, 6.

[5] V: CAPPELLI, ROGOVSKY, *Artificial intelligence in human resource management: a challenge for the human-centred agenda?*, in *ILO WP*, 2023, No 95.

above and the 2024 EU Directive approved on 11 March last, which seek to regulate precisely those processes and govern their possible tricky aspects.

2. HR management through artificial intelligence - some aspects in practice

The cases in which AI is applied are multiplying both in Italy and abroad and are continuously expanding.[6] Although no attempt is made here to provide an exhaustive list, at least four large areas of application can be identified to contextualise the legal analysis conducted in this work.[7]

The first large area concerns the use of AI tools in the processes of pre-selection, selection and matching of labour supply and demand, as well as in the planning of active and training policies. Such tools, for instance, make it possible to automatically generate and optimise job descriptions for job vacancies, conduct advanced research on candidates' CVS (CV intelligence), measure degrees of affinity and produce matching scores between candidates and vacancies, suggesting actions to bridge any misalignments. In addition, such systems can support talent scouting, assessment, evaluation of potential and analysis of advanced skills (on both the supply and demand sides). These tools also have a predictive function, making it possible to analyse professional and skills needs both at individual and group or sector level.[8]

The second large area concerns personnel recruitment and selection. In this context, large businesses and international groups employ AI systems to automate or semi-automate interviews and evaluations of candidates on a wide scale. These systems not only assess the skills possessed by candidates, but also analyse their human potential, aptitudes, and personal and relational characteristics (human potential intelligence). AI tools are also used to monitor on-boarding processes, improving compliance and reducing biases and prejudices, with a corrective, evaluative and ameliorative function of the entire selection process.

The third large area is personnel management, which includes people analytics tools for analysing and processing employee data, including from a predictive perspective. In this area, AI tools are used to assess individual and group performance, manage careers and enhance the value of staff, as well as to plan staff loyalty and retention strategies, with a focus on preventing voluntary resignations.

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[6] V: BELLAVISTA, SANTUCCI, *Tecnologie digitali, poteri datoriali e diritti dei lavoratori*, Torino, 2022; INGRAO, *Contratto di lavoro e digitalisation*, in *Enc. dir. - I Tematici*, 2023, Vol. VI, Contratto di lavoro, 245 ff.; DUGGAN, SHERMAN, CARBERY, MCDONNELL, *Algorithmic Management and App-Work in the Gig Economy: A Research Agenda for Employment and HRM*, in *Human res. man. jour.*, 2020, 1, 114 and PONTE, *Intelligenza artificiale e lavoro. Organizzazione algoritmica, profili gestionali, effetti sostitutivi*, Giappichelli, 2024.

[7] V: CIUCCIOVINO, *Risorse umane e intelligenza artificiale alla luce del regolamento (UE) 2024/1689, tra norme legali, etica e codici di condotta*, cit. see also, BANO, *Algoritmi al lavoro. Riflessioni sul "management" algoritmico*, in *Lav. dir*, 2024, 1, 133 ff.

[8] V: CIUCCIOVINO, *L'intermediazione alla prova dello skill mismatch*, in *Lav. dir.*, 2023, 2, 309 ff.; CIUCCIOVINO, *Professionalità, occupazione e tecnologia nella transizione digitale*, in *Federalismi.it*, 2022, 9, 129 ff.; FAIOLI, *Matchmaking: la tecnologia avanzata per il mercato del lavoro*, in *Lav. dir.*, 2023, 2, 333 ff.; LAMBERTI, *Formazione, occupabilità e certificazione delle competenze (tramite blockchain): un'alternativa alla "disoccupazione tecnologica"*, in BIASI (ed), *Diritto del lavoro e intelligenza artificiale*, Giuffrè, 2024, 281 ff.

Other applications include tools to optimise shift management, work group organisation, roster planning and workload streamlining (workflow algorithms).

Finally, the fourth large area concerns occupational health and safety. The applications of AI in this area range from intelligent personal protective equipment (e.g. hard hats and wearable devices to monitor the psychophysical state of workers) to tools based on augmented reality and the metaverse, which allow risky tasks to be performed more safely. AI is also used for data analysis aimed at accident prevention.

Annex III of Regulation (EU) 2024/1689 identifies a number of AI applications in the area of human resources that are considered high-risk. These systems are subject to specific requirements and stringent obligations for suppliers and other actors along the value chain. In particular, systems that exercise prerogatives and powers within the labour market are listed, including intermediation, personnel selection and professional training functions, as well as the management by employers or principals of employees and independent contractors as the case may be.

However, the applications of AI that are of interest in the labour context exceed those listed in Annex III. On the one hand, the exercise of private powers through AI is broader than what is considered in the Annex, including, for example, the use of AI for the management of reward and remuneration systems or for staff retention and attraction policies. On the other hand, there are AI systems that are themselves working tools since they intervene directly in the performance of work or in ensuring safety and accident prevention in the workplace.

The legal problems that arise vary depending on whether AI systems constitute tools for the exercise of employer prerogatives or work tools. In the latter case, workers are not passive subjects of the AI system but rather active agents interacting with it. This raises issues relating to workers' responsibility for properly using AI tools, duties of care, occupational health and safety, and liability for any damage caused. However, as those aspects do not concern the present discussion, a passing mention thereof is more than sufficient.

When, on the other hand, IA is used as a means of exercising employer prerogatives, questions arise as to the appropriate exercise of power and its limits[9]. These issues concern a non-arbitrary and rational exercise of power allied to a guarantee of transparency and non-discrimination, which are essential elements for the protection of workers' dignity, freedom and self-determination.[10]

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[9] V: ADAMS-PRASSL J., *What if your boss was an algorithm? Economic incentives, legal challenges, and the rise of artificial intelligence at work*, in *Comp. lab. law pol. jour.*, 2019, 1, 131 ff. and KLENGEL, WENCKEBACK, *Artificial intelligence, work, power imbalance and democracy –why co-determination is essential*, in *It. lab. law e-jour.*, 14, 2, 2021, 157-160.

[10] V: BARBERA, *Discriminazioni algoritmiche e forme di discriminazione*, in *Lab. law issues*, 2021, 1; BARBERA, *Principio di eguaglianza e divieti di discriminazione*, in BARBERA and GUARISO (eds), *La tutela antidiscriminatoria. Fonti, strumenti, interpreti*, Giappichelli, 2019, 59 ff.; BALLESTRERO, *Ancora sui rider. La cecità discriminatoria della* piattaforma, in *Labor*, 2021, 1, 104 ff.; ALESSI, *Lavoro tramite piattaforma e divieti di discriminazione nell'UE*, in ALESSI, BARBERA and GUAGLIANONE (eds), *Impresa, lavoro e non lavoro nell'economia digitale*,

3. Initial reflections on the EU Directive on improving working conditions in platform work

Faced with the challenges posed by new forms of organisation of work based on digital platforms, the EU also adopted in 2024 a directive on improving working conditions in platform work,[11] which in some respects falls within the scope of our inquiry here.

The central objective of the Directive is to improve working conditions and ensure greater protection of personal data in platform work, counteracting the risk that new organisational models, while bringing many benefits, may compromise workers' rights[12].

The Directive has several specific objectives: (i) introducing measures to facilitate the determination of the correct employment status of persons performing platform work; (ii) promoting transparency, fairness, human oversight, safety and accountability in algorithmic management in platform work; and (iii) improving transparency with regard to platform work, including in cross-border situations.

These objectives are rooted in two distinct legal bases. The first one concerns the Union's competence in the field of the improvement of working conditions (related to Article 153(1)(b) TFEU), while the second one concerns the protection of personal data (related to Article 16(2) TFEU). With reference to the first competence, the Directive introduces minimum rights that apply to every person performing platform work in the Union (Article 1(2)), leaving Member States free to introduce or maintain more favourable provisions (Article 26). Under the second competence, the Directive regulates the protection of personal data by providing measures on algorithmic management applicable to persons

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Cacucci, 2019; PERULLI, *La discriminazione algoritmica: brevi note introduttive a margine dell'ordinanza del Tribunale di Bologna*, in *Lav. dir. Eu.*, 2020, 1, 7; LO FARO, *Algorithmic Decision Making e gestione dei rapporti di lavoro: cosa abbiamo imparato dalle piattaforme*, in *Federalismi.it*, 2022, 25; GAUDIO, *Algorithmic management, poteri datoriali e oneri della prova: alla ricerca della verità materiale che si cela dietro l'algoritmo*, in *Lab. law issues*, 2020, 2, 21 ff. and DE PETRIS, *Le discriminazioni da algoritmo nella gig economy*, in *Arg. dir. lav.*, 2020, 4, 889.

[11] On the gestation of the Directive, see: RIGHI, *La direttiva sul lavoro da piattaforma digitale: dinamiche negoziali e scenari futuri*, https://www.labourlawcommunity.org/international-community/social-europe/la-direttiva-sul-lavoro-da-piattaforma-digitale-dinamiche-negoziali-e-scenari-futuri/. For comments on the proposal for a directive, see: ALAIMO, *Il pacchetto di misure sul lavoro nelle piattaforme: dalla proposta di Direttiva al progetto di Risoluzione del Parlamento europeo. Verso un incremento delle tutele?*, in *Lab. law issues,* 2022, 1, 10 ff; BRONZINI, *La proposta di direttiva sul lavoro nelle piattaforme digitali tra esigenze di tutela immediata e le sfide dell''umanesimo digitale*, in *Lav. dir. Eur.*, 2022, 1, 4 ff.; DONINI, *Alcune riflessioni sulla presunzione di subordinazione della Direttiva Piattaforme*, in *Lab. law issues*, 2022, 1, 39; FALSONE, *What impact will the proposed EU Directive on platform work have on the Italian system?*, in *It. lab. law e-jour.*, 2022, 1, 106 ff.; KULLMAN, *'Platformisation' of work: An EU perspective on introducing a legal presumption*, in *Eur. lab. law journal*, 2022, 1, 69 ff.; SCELSI, *The escape from (presumption of) subordination, in improving working conditions in platform work in the light of the recent proposal for a directive*, in BELLOMO, MEZZACAPO, FERRARO, CALDERA (EDS), *Improving working conditions in platform work in the light of the recent proposal for a directive*, Sapienza Università Editrice, 2023, 188 ff. In relation to the versions preceding the approved one, see the comments of HIESSL, *Multiparty relationship in platform work: Cross European case law developments and points of departure for (supranational) regulation*, in *Eur. lab. law journal*, 2023, 4, 534 ff.; JAROTA, *Artificial intelligence in the work process. A reflection on the proposed European Union regulations on artificial intelligence from an occupational health and safety perspective*, in *Comp. law sec. rev.*, 49, 2023, 2-3; EU-OSHA, *Foresight on new and emerging occupational safety and health risks associated with digitalisation by 2025*. European Risk Observatory, Report, Publications Office of the European Union, Luxembourg, 2018, 6-7, available at https://osha.europa.eu/sites/default/files/Foresight_new_OSH_risks_2025_report.pdf.

[12] V: TODOLÍ-SIGNES, *Making algorithms safe for workers: occupational risks associated with work managed by artificial intelligence*, in *Transfer: eur. review lab. res.*, 2021, 4, 433 ff.

performing platform work (Article 1(2), second sentence).

However, it should be specified that the Directive does not apply to all digital platforms, but only to digital labour platforms,[13] defined as a natural or legal person providing a service that meets certain specific requirements: (i) it is provided, at least in part, at a distance by electronic means, such as by means of a website or a mobile application; (ii) it is provided at the request of a recipient of the service; (iii) it involves, as a necessary and essential component, the organisation of work performed by individuals in return for payment; and (iv) it involves the use of automated monitoring systems or automated decision-making systems (Article 2(1)). Organisational management by the platform must therefore be a central aspect of the service provided, although the degree of involvement may vary depending on the business model.[14]

Recital 20 deals specifically with algorithmic management and specifies the criteria for determining the essential organisational activity performed by platforms. With the approval of the Directive, platforms will have to play a "significant" role in matching the demand for the service with the supply of work through the use of algorithms, facilitating the intermediation between workers and customers, with the obligation to formalise the relationship through a contract. This criterion of *significance* can be interpreted, for example, as the platform's ability to direct users to certain job offers through indexing, selection or matching algorithms.

The Directive also distinguishes between online work performed exclusively through digital means and on-site work, which involves a combination of online communication and physical activity at a specific location. Excluded from the scope of the Directive are platforms that do not organise work in the strict sense, but merely provide technological means to facilitate the matching of supply and demand, such as in the case of platforms for sharing assets, such as short-term rental of accommodation (Article 2(2) and Recital 20).

Regarding the persons covered by the Directive, the provisions apply to individual performing platform work, irrespective of the nature of the contractual relationship or the designation of that relationship by the parties involved. The concept of "platform work" includes both work organised through a digital labour platform and work in which the platform engages in intermediation (Article 2(1)).[15]

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[13] On whose definition see: SIX SILBERMAN, *The definition of "digital labour platform" in the Proposed Platform Work Directive*, verfassungsblog, 18 July 2023, https://verfassungsblog.de/the-definition-of-digital-labour-platform-in-the-proposed-platform-work-directive/.

[14] This statement is well written in Recital 5 of the Directive.

[15] The risk of a limiting effect of the concept of employment relationship in the practical application of the Directive's provisions is pointed out by ALOISI, RAINONE, COUNTOURIS, *An unfinished task? Matching the platform work directive with the EU and international 'social acquis'*, ILO WP, 12/2023, 16 ff.

A specific subset are "platform workers", defined as those who have or are deemed to have an employment contract or an employment relationship as defined by the law, collective agreements or practice in force in the Member States with consideration to the case-law of the Court of Justice. [16] The classic rules of EU labour law apply to these workers, including those on health and safety at work (Article 12) and involvement in company decisions affecting the organisation of work (Article 13), topics that are well highlighted in the text of the Directive.

Ultimately, addressing at another time various tricky issues, including actual application by the Member States, suffice it to say for now that the Directive's rational is to introduce an innovative regulatory framework, aimed at ensuring greater transparency, fairness and protection of workers within digital platforms, while at the same time offering a legal response to the transformations of the labour market induced by the increasing use of technology and algorithmic management.

4. Algorithmic management of employment relationships

Chapter III of the Platform Work Directive focuses on a crucial aspect for our investigation: the "algorithmic management" of work. This concept refers to the use of automated systems for the organisation and management of work, which increasingly replace the decisions of natural persons, becoming the standard mode in digital platforms. These systems are used not only to assign tasks but also to monitor the performance of work, evaluate its progress and make decisions that directly affect the working conditions of those involved.[17]

In this regard, the Directive distinguishes between two categories of automated systems: "automated monitoring systems", which supervise and evaluate work performance, and "automated decision-making systems", which are used to make decisions that directly affect working conditions.[18] These systems determine access to job opportunities, set wages and incentives, as well as possible sanctions, and may even suspend or restrict workers' accounts.[19] Despite the importance of those systems, persons subject to such algorithmic management rarely have sufficient information to understand their functioning or the reasons behind the decisions made.[20]

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[16] On these issues: BARBIERI, *Prime osservazioni sulla proposta d direttiva per il miglioramento delle condizioni di lavoro nel lavoro con piattaforma*, in *Lab. law issues*, 2021, 2, 9 ff. and in a critical sense, KOCHER, *A timid proposal. Employment status in the Proposal for an EU Directive on Improving Working Conditions in Platform work*, verfassungsblog, 18 July 2023, https://verfassungsblog.de/a-timid-proposal/

[17] V: DE STEFANO, *The EU Commission's proposal for a directive on platform work: an overview*, in *It. lab. law e-jour.*, 2022, 5 ff.

[18] On critical issues, see: RAINONE, *Obblighi informativi e trasparenza nel lavoro mediante piattaforme* digitali, *Federalismi.it*, 2024, 3, 284 ff.

[19] On these issues see TULLINI, *La Direttiva Piattaforme e i diritti del lavoro digitale*, in *Lab. law issues*, 2022, 2, 52 ff.

[20] In fact, one of the key problems of algorithmic management is precisely the language that is not clear to most, generating problems of lack of transparency of the algorithm itself. It is precisely this lack of transparency that raises the question of how much accountability there is in decision-making systems based on processes whose knowledge is precluded to most. Although the degree of accuracy of these tools is increasing, this is not always the case. On the one hand, technology can indeed be a useful tool in reducing prejudices and stereotypes inherent in human nature. On the other hand, however, there is already plenty of empirical evidence that algorithmic decision-makers are also fallible. This is precisely why we can see that algorithmic management has the problem of the lack of transparency that characterises a large part of automated decision-making processes. Adopting a

In order to address this transparency deficit, the Directive introduces information obligations for platforms and new rights for workers, with the aim of ensuring fairness and accountability in algorithmic management.

Although the rules contained in Chapter III apply to all persons performing platform work, regardless of their type of contract, thus extending protection also to those who are not employees in a strict sense, the application of the provisions is not universal. In fact, the obligations under Chapter III exist only where the organisation of work constitutes an essential element of the platform's activity. Otherwise, the EU's laws and regulations specifically aimed at online platforms continue to apply. Indeed, the rules in question aim to increase the transparency of automated decisions and to make algorithmic systems more accessible to workers.[21] The goal is to make platforms-employers accountable and to ensure greater protection of workers' fundamental rights, including freedom and dignity, regardless of any actual exercise of employer powers by the platform itself.

The information obligations imposed thus lead to greater accountability on how algorithmic systems operate, and the provision of human oversight and review of algorithmic decisions gives workers new tools for checking business organisational decisions.

Due to their scope and innovativeness, the provisions introduce a significant change in the labour law landscape[22], supplementing traditional regulatory techniques based on mandatory rules or prohibitions, with procedural measures aimed at conditioning the ways in which employers exercise their powers and not only the management decisions from which they derive. It is no coincidence that the literature speaks of a new branch of labour law.[23]

5. The particularities of algorithmic management of employment relationships

In the context of the rules provided for algorithmic management, the EU pays special attention

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more general perspective and broadening the field beyond algorithmic management tools, they have been described as black boxes, i.e. opaquely functioning. See PASQUALE, *The Black Box Society: The Secret Algorithms that Control Money and Information*, Harvard University Press, 2015. See also, SENA, *Transizione digitale, tutela dei diritti dei lavoratori e "human rights due diligence"*, in *WP Fa.Ri.*, 2024, 3; LIU, YUAN, ZHENWUJIANG, *The dark side of algorithmic management: investigating how and when algorithmic management relates to employee knowledge hiding?*, in *Journal know. manag.*, 2024, 10 and MOORE, JOYCE, *Black box or hidden abode? The expansion and exposure of platform work managerialism*, in *Review int. pol. ec.*, 2020, 4, 926 ff.

[21] For a distinction between generic "algorithmic accountability" and human review of specific decisions, see VEALE, SIX SILBERMAN, BINNS, *Fortifying the algorithmic management provisions in the proposed Platform Work Directive*, in *Eur. lab. law jour.,* 2023, 14, 320 ff.

[22] V: CLARKE*, Algorithmic Management Is Changing the Nature of Work*, Tech Monitor, 19 May 2021, available at: https://techmonitor.ai/leadership/workforce/algorithmic-bosses-changing-work.

[23] V: FAIOLI, *Robot Labor Law. Linee di ricerca per una nuova branca del diritto del lavoro e in vista della sessione sull'intelligenza artificiale del G7 del 2024*, in *Federalismi.it*, 2024, 8, p. 182.

to the protection of natural persons with regard to the processing of personal data, as stated in Article 7 of the Directive.[24] The new provisions set strict limits to the processing of personal data by means of automated monitoring and decision-making systems, supplementing what is already established by Regulation (EU) 2016/679 (GDPR)[25]. In particular, the Directive prohibits the processing of specific categories of personal data, including those relating to emotional or psychological state, private conversations, and those linked to the exercise of fundamental rights such as freedom of association, the right of collective bargaining, and the right to information and consultation. Sensitive data that could reveal information like racial or ethnic origin, political opinions, religious beliefs, state of health, sex life or sexual orientation are also excluded. In addition, the Directive prohibits the use of biometric data for identity recognition purposes by comparing them with other information stored in databases (Article 7).

The interrelationship with GDPR provisions, with specific reference to the special features of platform work, is further expressed through Article 8 of the Directive, which states that the processing of data by means of automated decision-making systems always constitutes a "high risk to the rights and freedoms of natural persons": this implies an obligation for digital platforms to carry out an impact assessment pursuant to Article 35 GDPR. In the context of such an assessment, platforms must consult both persons performing platform work and their representatives, consolidating a participatory approach in algorithmic management.

However, in my opinion, the provisions on the protection of personal data are not sufficient to guarantee comprehensive protection for persons performing platform work, such that there is still a need for additional and specific rules to manage the risks inherent in the use of state-of-the-art algorithmic systems.

Again with reference to the particularities of algorithmic management, Article 9 of the Directive imposes precise information obligations on digital labour platforms. The latter must inform persons performing platform work, platform workers' representatives and, upon request, national competent authorities of the use of automated monitoring and decision-making systems and their main features. This information must be provided in a written document (including in electronic form) and must be presented in a transparent, intelligible and easily accessible form, using clear and plain language. The type and content of the information varies depending on whether the system is a monitoring or decision-making one: in the former case, the information must relate to the actions monitored and the data

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[24] V: VEALE, SIX SILBERMAN, BINNS, *Fortifying the algorithmic management provisions in the proposed Platform Work Directive*, cit.

[25] V: GRAGNOLI, *Il potere di controllo e le risorse digitali*, in *WP Fa.Ri.*, 2024, 2, according to which these protections are designed for contractual situations where the parties are in an equal position, as in commercial relationships, and are not intended for subordinate workers, while it remains that this would constitute a form of minimum safeguard, and PONCE DEL CASTILLO, *Algorithmic workplace surveillance*, paper presented at the Digit Debates Series, University of Sussex, 24 March 2021.

processed, while in the latter it must indicate the main criteria and parameters underlying the decisions taken, including those relating to restricting, suspending or terminating an account, as well as decisions on remuneration.[26]

In addition to information obligations, the Directive provides for the introduction of forms of human oversight of the operation of algorithmic systems, in particular through Articles 10 and 11, which impose an obligation on platforms to carry out periodic impact assessments. These evaluations, to be conducted every two years, must involve workers' representatives and aim to monitor the impact of individual decisions taken or supported by automated systems. Platforms must also ensure sufficient human resources, with specific skills and training, to oversee and evaluate the impact of such decisions. In any case, any decision to restrict, suspend or terminate the contractual relationship or the account of a person performing platform work must be taken by a human being.

The Directive also enshrines the right of persons performing platform work to receive a detailed explanation of algorithmic decisions affecting them and to request a review thereof. In this context, the platform is obliged to respond promptly and provide a written statement of reasons,, within two weeks of receipt of the request. In this regard, workers must be able to interact with a person designated by the platform who can provide clarification and further explanation of algorithmic decisions.[27]

6. Algorithmic management and some problematic issues in practice

The introduction of algorithmic tools has led (and will increasingly lead) to a partial (or total in some not-so-isolated cases) automation of management decision-making and monitoring processes,[28] entailing a radical transformation of traditional entrepreneurial and employer powers.[29] In fact, those powers undergo a *morphological* change, in that they do not disappear but rather are transformed and take on a variety of forms, including camouflaged. The legal literature has pointed out how the use of

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[26] On which, with specific reference to this topic: AIMO, *Trasparenza algoritmica nel lavoro su piattaforma: quali spazi per i diritti collettivi nella proposta di direttiva in discussione?*, in *Lav. dir. Eu.*, 2024, 2; FALERI, *Management algoritmico e asimmetrie informative di ultima generazione*, in *Federalismi.it*, 2024, 3, 217. In general on the problematic issues associated with the application of the Directive in Italy, see: PROIA, *Origine, evoluzione e funzioni della trasparenza nei rapporti di lavoro*, in *Mass. giur. lav.*, 2023, 4, 719; BALLETTI, *Trasparenza nei rapporti di lavoro e contrattazione collettiva*, in *Mass. giur. lav.*, 2023, 4, 650; BIASI, *Trasparenza e sistemi decisionali o di monitoraggio (integralmente) automatizzati*, in *Giur. it.*, 2024, 7, 1725; FERRARI, *Decreto trasparenza e rapporti di lavoro: uno sguardo d'insieme*, in *Giur. it.*, 2024, 7, 1693; GAROFALO, TIRABOSCHI, *Prime riflessioni sul decreto "trasparenza" (d.Lgs. 104/2022) modificato dal decreto "lavoro" (d.Lgs. 4/2023)*, in *Arg. dir. lav.*, 2023, 4, 651; CALCATERRA, *Il rinvio alla contrattazione collettiva per informare il lavoratore nel "decreto trasparenza": dalla preclusione alla legittimazione*, in *Arg. dir. lav.*, 2023, 4, 677; BELLAVISTA, *La questione del potere "trasparente" nei rapporti di lavoro*, in *Dir. mer. lav.*, 2023, 3, 577.

[27] V: SMORTO, DONINI, *L'approvazione della Direttiva sul lavoro mediante piattaforme digitali*, in *Lab. law issues*, 2024, 1, 25 f.

[28] V: NOVELLA, *Impresa*, in NOVELLA, TULLINI (eds), *Lavoro digitale*, Giappichelli, 2022, 23.

[29] V: ZAPPALÀ, *Algoritmo*, in BORELLI, BRINO, FALERI, LAZZERONI, TEBANO, ZAPPALÀ, *Lavoro e tecnologie. Dizionario del diritto del lavoro che cambia*, Giappichelli, 2022, 18; ALOISI, DE STEFANO, *Il tuo capo è un algoritmo. Contro il lavoro disumano*, Cacucci, 2020; GAUDIO, *Algorithmic management, poteri datoriali e oneri della prova: alla ricerca della verità materiale che si cela dietro l'algoritmo*, in *Lab. law issues*, 2020, 2, 23; DAGNINO, *Dalla fisica all'algoritmo: una prospettiva di analisi giuslavoristica*, Adapt University Press, 2019; FRANCESCHETTI, GUARISCIO, *Il lavoro ai tempi del "management" algoritmico*, in *Riv. giur. lav.*, 2018, I, 705 ff.; MAIO, *Il diritto del lavoro e le nuove sfide della rivoluzione robotica*, in *Arg. dir. lav.*, 2018, p. 1414 ff; SPINELLI, *Tecnologie digitali e lavoro agile*, Cacucci, 2018, 19 ff.

algorithms greatly increases employers' powers, especially in terms of control and conformation of the performance of work.[30] It must be borne in mind that the computational power of new technologies, thanks to their ability to process, compare and evaluate workers' profiles, further increases the pervasiveness of control, multiplying the opportunities for the exercise of disciplinary power.

In spite of an apparent greater autonomy of workers in organising and controlling their own performance of work, the introduction of automated decision-making mechanisms actually results in an increase in their subjection, amplifying the condition of subordination compared to traditional production contexts[31].

We could say that a new imbalance is generated in labour relations, mainly determined by the opacity of algorithmic decision-making processes,[32] which are extremely complex and often incomprehensible to workers, who find themselves effectively in the dark as to how decisions affecting their rights and working conditions are taken.

The inscrutability of algorithmic processes is not solely due to issues of business confidentiality or intellectual property protection but is intrinsic to the technical nature of the algorithms themselves, which require highly specialised skills in order to be understood. In particular, machine learning algorithms are so complex that they are incomprehensible even to experts themselves, making it difficult to decipher the logic behind the decisions made.[33]

This situation could, in my view, generate obvious difficulties for workers in detecting possible violations of labour or contractual rules, thus compromising the effectiveness of regulatory protections and the possibility of resorting to internal review procedures or judicial protection. Moreover, as will be discussed in greater detail later on, the lack of transparency of algorithmic mechanisms allied to the difficulty in understanding them may hinder any determination of the nature of labour relations, making it complicated to identify the person wielding the managerial and organisational power, with obvious

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[30] V: TEBANO, *Lavoro, potere direttivo e trasformazioni organizzative*, Editoriale Scientifica, 2020,193 ff., in particular where he points out how "the power of direction mutates and contaminates itself with the power of control, taking on the features of a 'power of direction-control''. On this subject see also PERUZZI, *Intelligenza artificiale e lavoro. Uno studio su poteri datoriali e tecniche di tutela*, Giappichelli, 2023, 7; TULLINI, *La questione del potere nell'impresa. Una retrospettiva lunga mezzo secolo*, in *Lav. dir.*, 2021, 442 ff.; ZAPPALÀ, *Informatizzazione dei processi decisionali e diritto del lavoro: algoritmi, poteri datoriali e responsabilità del prestatore nell'era dell'intelligenza artificiale*, in *WP Massimo D'Antona*, No 446/2021, now published in Biblioteca '20 Maggio', 2021, No 2.

[31] V: SPINELLI, *La trasparenza delle decisioni algoritmiche nella proposta di Direttiva UE sul lavoro tramite piattaforma*, in *Lav. dir. Eu.*, 2022, 2, 8; GAUDIO, *Algorithmic management, poteri datoriali e oneri della prova: alla ricerca della verità materiale che si cela dietro l'algoritmo*, cit., p. 25 and BAIOCCO, FERNANDEZ-MACÍAS, RANI, PESOLE, *The Algorithmic Management of work and its implications in different contexts*, in *ILO WP*, 2022, No 9.

[32] The expression is used by FALERI, *Management algoritmico e asimmetrie informative di ultima generazione*, in *Federalismi.it*, 2024, 3, 217 ff.

[33] V: LO FARO, *Algorithmic Decision Making e gestione dei rapporti di lavoro: cosa abbiamo imparato dalle piattaforme*, in *Federalismi.it*, 2022, 25, 192, where algorithms are defined as "irrational", "blind" and "mirror". See also BARBERA, *Discriminazioni algoritmiche e forme di discriminazione*, cit.

repercussions on the protection of workers' rights.[34]

The use of digital tools and algorithms, especially in job evaluation and performance measurement processes, can also facilitate the advent of new forms of discrimination or exacerbate existing ones, depending on how the algorithm is programmed.[35] As pointed out by the European Commission in its "Strategy for Gender Equality 2020-2025", if not sufficiently transparent, algorithms risk reproducing, amplifying or creating prejudices rooted in the work environment, without the programmers necessarily being aware of it. It is no coincidence that the 2019 "White Paper on Artificial Intelligence" had already recognised that the use of artificial intelligence can pose risks to fundamental rights due to the opacity of the decision-making mechanisms on which it is based.

Although digital platforms do not embody a traditional hierarchical organisational form, they nevertheless produce significant asymmetries of power. Algorithmic management, with its difficult intelligibility, contributes to reinforcing the information asymmetry already present in labour relations, giving rise to a new form of subordination that the legal literature has defined as "technological-computerised subordination of workers". Information asymmetries, long recognised by economic theory as one of the main causes of contractual disparity, lead to cases of contractual opportunism, in which the party with more information tends to pursue its own interests to the detriment of the other party, thus aggravating the contractual imbalance[36].

Faced with these risks, a legal reflection is needed to address the challenges posed by the lack of transparency of algorithmic decision-making processes, in order to counter the growing information asymmetries and the condition of technological subordination of workers. Traditional labour law, in fact, encounters difficulties in filling the regulatory gaps generated by the complexity of algorithmic management, requiring the adoption of new forms of protection that can effectively safeguard workers' rights in the digital environment[37].

7. The new power of employers

The points made above are certainly food for thought in relation to how the power of employers has morphed in the context of new technologies. In particular, in production sectors marked by high

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[34] Already noted by CIUCCIOVINO, *Le nuove questioni di regolazione del lavoro nell'industria 4.0 e nella gig economy: un problem framework per la riflessione,* in *Dir. rel. ind.*, 2018, 1043 ff.

[35] V: DE SIMONE, *Discriminazione*, in NOVELLA, TULLINI (eds), *Lavoro digitale*, cit., 143 ff.; LAZZERONI, *Discriminazioni digitali*, in BORELLI, BRINO, FALERI, LAZZERONI, TEBANO, ZAPPALÀ, *Lavoro e tecnologie*, cit., 99 ff.; BARBERA, *Discriminazioni algoritmiche e forme di discriminazione*, in *Lab. law issues*, 2021, 1; TULLINI, *Algorithm at Work; Machine Learning and Discrimination*, presentation at the Labour Law Community Webinar of 23 April 2021, where he highlights the "deterministic and [only] apparently neutral force that technologies possess".

[36] V: ROSENBLAT, STARK, *Algorithmic Labor and Information Asymmetries: A Case Study of Uber's Drivers*, in *Int. jour. comm.*, 2016, 27, 3758 ff.

[37] V: BERNHARDT, KRESGE, SULEIMAN, *Algorithms at work: The case for worker technology rights*, in *WP Berkeley*, 2021.

technological and digital innovation, it is clear that the boundary between checking the operation of facilities, product quality and the carrying out of work organised by intelligent machines is gradually thinning[38]. This evolution entails a blending of the power of direction and the power of control, giving rise to a new form of power, characterised by management and monitoring aspects that are ever more intertwined and achieved by high-precision technological tools.[39]

From this perspective, there arises the phenomenon of *algorithmic power*, i.e. power given to a non-human algorithm-employer over the direction and control of work, which the legal literature interprets as a conceptual fusion between powers of direction and powers of control. This transformation is rooted in production environments characterised by a high degree of technological innovation, in which the enormous capacity of artificial intelligence systems to direct the performance of work makes the boundary between the power to ensure that the work performed conforms to the employer's interests and the power to control work increasingly indistinguishable.[40]

Control thus becomes the logical prius that underlies both the power of direction and algorithmic power mentioned above, which is a kind of reflection of it. Paradoxically, it manifests itself in the apparent absence of direct intervention, but leaves an imprint through potentially non-explicit control mechanisms. However, in the production context of reference, initial control is not exercised directly over the worker as an individual, but over the data – including personal data – that are aggregated in big data systems, powering the algorithms employed in the management model under consideration. This use of big data, as pertaining to employment relationships, first and foremost raises issues related to the protection of privacy, recalling the need to guarantee the freedom and dignity of workers under GDPR.[41].

An innovative aspect, as yet little explored, concerns the quantity and quality of information collected and the cognitive processing that advanced information technology (ICT) is able to extract. This extraction process not only generates economic value,[42] but also inaugurates a new form of disciplinary power. Employer power thus becomes shaped and supported by information (data-driven

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[38] V: GENT, *Cyberboss: The Rise of Algorithmic Management and the New Struggle for Control at Work*, Verso Books, 2024 and WOOD, *Algorithmic Management: Consequences for Work Organisation and Working Conditions*, in JRC WP, 2021-07, Seville: European Commission.

[39] V: TEBANO, *Potere direttivo e trasformazioni organizzative*, Editoriale Scientifica, 2020, 242 ff.

[40] V: FALERI, *Management algoritmico e asimmetrie informative di ultima generazione*, cit.

[41] V: PERUZZI, *Intelligenza artificiale e lavoro*, cit., p. 23. See also, for the configurability of an autonomous right to "explanation" is the subject of a heated debate among privacy scholars. In favour of this reconstruction which, in the opinion of the writer is preferable, v. PELLECCHIA, *Profilazione e decisioni automatizzate al tempo della black box society: qualità dei dati e leggibilità dell'algoritmo nella cornice della responsible research and innovation*, in *Nuove leggi civ. comm.*, 2018, 5, 1210 ff.; MESSINETTI, *La tutela della persona umana versus l'intelligenza artificiale. Potere decisionale dell'apparato tecnologico e diritto alla spiegazione della decisione automatizzata*, in *Cont. imp.*, 2019, 3, 861 ss. In the opposite direction, cfr. WACHTER, MITTELSTADT, FLORIDI, *Why a Right to Explanation of Automated Decision Making Does Not Exist in the General Data Protection Regulation*, in *Intern. data privacy law*, 2017, 2, p. 76 ff. For a middle way, that is on the existence of a right to "legibility", in the sense of possibility of understanding on the functioning, v. MALGIERI, COMANDÈ, *Why a Right to Legibility of Automated Decision-Making Exists in the General Data Protection Regulation*, in *Intern. data privacy law*, 2017, 4, 243 ff.

[42] V: SRNICECK, *Capitalismo digitale*, Luiss University Press, 2017.

management), where control merges with directing the performance of the work, moulding the organisation through information and algorithms.[43] In this sense, the view that there is a conceptual confusion between the power of control and the power of direction, now increasingly interconnected, becomes more understandable.

For these reasons, the literature is gauging the feasibility of an empirical test of algorithm legibility structured in two parts, concerning: a) the functioning of algorithms and the logic used; and b) the actual impact on decision-making processes. Therefore, from a standpoint of legibility by design and by default of algorithms, there should be a general obligation to disclose the main algorithmic parameters and their relevance in the decision-making process, which influence working conditions, above all with reference to reputational rating. This guarantee should then be coupled with that of the *reversibility* of algorithmic decisions, assured by the oversight and intervention of human personnel, who would step in if necessary to replace, correct or annul the erroneous or unfair decision of the algorithm. To this end, valuing (not only on a formal level[44]) the role of the social partners is crucial, in a logic of "democratic accountability"[45], not properly developed in the EU Directive, which timidly promotes information rights also for "workers' representatives".

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[43] V: INGRAO, *Data-Driven management e strategie collettive di coinvolgimento dei lavoratori per la tutela della privacy*, in *Lab. law Issues*, 2019, 2, 131; COLAPIETRO, *Gli algoritmi tra trasparenza e protezione dei dati personali,* in *Federalismi.it*, 2023, 3, 151 ff; MORTIER, HADDADI, HENDERSON, MCAULEY, CROWCROFT, *Human Data Interaction: The Human Face of the Data-Driven Society*, in *MIT tech. rev.*, 2014, 5; DE STEFANO, TAES, *Algorithmic management and collective bargaining*, in *Transfer: eur. review lab. res.*, 2023, 1, 21-36; ALOISI, GRAMANO, *Artificial Intelligence Is Watching You at Work: Digital Surveillance, Employee Monitoring, and Regulatory Issues in the EU Context*, in *Comp. lab. law pol. Jour.*, 1, 2019, 95 ff.; MOLÉ, *The Internet of Things and Artificial Intelligence as Workplace Supervisors: Explaining and Understanding the New Surveillance to Employees Beyond Art. 8 ECHR*, in *It. lab. law e-jour.,* 2022, 2, 87-103. The 45th Global Privacy Assembly has adopted a resolution (see Resolution on Artificial Intelligence and Employment, 45th Closed Session, October 2023, https://globalprivacyassembly.org/wp-content/uploads/2023/10/1.-Resolution-on-AI-and-employment-1.pdf) in which organizations that develop or deploy AI systems in the employment context are urged to ensure the use is human-centric and in compliance with principles of data protection and privacy by design.

[44] The role of the social partners is defined as a "crucial factor" in ensuring a human-centred approach to AI at work by the White Paper on Artificial Intelligence.

[45] As highlighted by the ILO, Global Commission of the Future of Work, Work for a Brighter Future of Work.

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Abbreviation

Arg. dir. lav. – Argomenti di Diritto del Lavoro

Comp. lab. law pol. jour. - Comparative Labor Law and Policy Journal

Comp. lav. sec. rev. - Computer Law & Security Review

Contr. imp. – Contratto e Impresa

Data soc. - Data & Society

Dir. mer. lav. – Il Diritto del Mercato del Lavoro

Dir. rel. ind. – Diritto delle Relazioni Industriali

Enc. dir. – Enciclopedia del Diritto

Eur. lab. law journal - European Labour Law Journal

Giur. it. – Giurisprudenza italiana

Har. bus. school WP - Harvard Business School Working Paper

Human res. man. jour - Human Resources Management Journal

ILO WP - ILO Working Paper

Int. jour. comm. - International Journal of Communication

Intern. data privacy law - International Data Privacy Law

It. lab. law e-jour. – Italian Labour Law e-Journal

Journal know. manag. - Journal of Knowledge Management

JRC WP - JRC Working Papers Series on Labour, Education and Technology

Lab. law issues – Labour & Law Iusses

Labor – Labor. La rivista sul diritto del lavoro

Lav. dir. – Lavoro e Diritto

Lav. dir. Eu. – Lavoro, Diritti, Europa

Mass. giur. lav. – Massimario di Giurisprudenza del Lavoro

MIT tech. rev. - MIT Technology Review

Nuove leggi civ. comm. – Le Nuove Leggi Civili Commentate

Review int. pol. ec. - Review of International Political Economy

Riv. giur. lav. – Rivista Giuridica del Lavoro e della Previdenza Sociale

Transfer: eur. review lab. res. - Transfer: European Review of Labour and Research

WP Berkeley - Working Paper, UC Berkeley Labour Centre

WP Fa.Ri. - I Working Papers Fa.Ri

WP Massimo D'Antona - WP CSDLE "Massimo D'Antona".IT