Gestión de algoritmos. El caso del trabajo en plataformas

Managing the algorithms. The case of platform work

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Resumen: El artículo analiza el primer instrumento de la UE para regular la supervisión automatizada y la toma de decisiones automatizada en el contexto laboral, es decir, la Directiva sobre la mejora de las condiciones de trabajo en el trabajo en plataformas (Directiva sobre el trabajo en plataformas). Las disposiciones legales sobre la gestión algorítmica contenidas en este instrumento merecen un análisis detallado. No solo se las considera ampliamente como el conjunto de disposiciones más progresistas y mejor diseñadas de la Directiva, sino también como un banco de pruebas para una mayor regulación que aborde las prácticas de gestión algorítmica en los lugares de trabajo tradicionales, más allá del contexto del trabajo en plataformas. El artículo analiza las disposiciones pertinentes establecidas en la Carta III de la Directiva sobre el trabajo en plataformas, prestando especial atención a la intrincada forma de establecer su alcance personal y material. La regulación actual de la supervisión y la toma de decisiones automatizadas en esa Directiva se contextualiza con las disposiciones de la original presentadas por la Comisión Europea y otros instrumentos legales pertinentes, como el Reglamento General de Protección de Datos. El artículo plantea que, a pesar de los notables avances en la protección de las personas que realizan trabajos en plataformas frente a los riesgos algorítmicos, algunos aspectos críticos siguen sin abordar.

Palabras clave: Trabajo en plataformas, gestión algorítmica, sistemas automatizados, protección de datos, condiciones laborales

Abstract: The paper provides an analysis of the firstever EU instrument to regulate automated monitoring and automated decisionmaking in the work context, i.e., the Directive on Improving Working Conditions in Platform Work (the Platform Work Directive). The legal provisions on algorithmic management contained in this instrument merit detailed scrutiny. Not only are they widely considered to be the most progressive and well-designed set of the Directive's provisions but also a testbed for further regulation that would address algorithmic management practices in traditional workplaces, beyond the platform work context. The article analyses the relevant provisions laid down in Charter III of the Platform Work Directive, paying particular attention to the intricate way of drawing their personal and material scope. The current regulation of automated monitoring and decision-making in that Directive is contextualised against the provisions of the original Proposal put forth by the EU Commission, as well as

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other relevant legal instruments, such as the General Data Protection Regulation. The article posits that despite noticeable advancements in the protection of people performing platform work against algorithmic risks, some critical aspects remain unaddressed.

Keywords: Platform work, algorithmic management, automated systems, data protection, working conditions.

1. Introduction

Algorithmic management is a core driver of the platform business model and a definitional feature of digital labour platforms. As stems from the criteria formulated in Article 2 (1) Platform Work Directive (PWD), a digital platform does not fall under the scope of this instrument unless automated monitoring or automated decision-making systems are put in place.[1] Automated decision-making and monitoring shape the dynamics of platform work and are key determinants of the working conditions of people performing platform work. Relatedly, the regulation of algorithmic management lies at the very heart of the Directive, along with the presumption of the employment status of platform workers that tackles the perennial issue of their misclassification (Articles 4-6).

The algorithmic management provisions contained in Chapter III of the Directive (Articles 7 to 15) serve multiple purposes. From workers' perspective, the improvement of the protection of their personal data, regardless of their employment status, should shield them from excessive surveillance and enable them to realise their substantive rights, such as the right to privacy, the right to healthy and safe work conditions, and equal treatment.[2] The opacity of the algorithms used by the platform, and the information asymmetries between the platforms and their users, are key factors hindering the full exercise of these labour rights. Moreover, information and data access rights should make workers aware of the mechanisms steering their work performance, which is instrumental to regaining control over the working process, and making it more predictable and easier to navigate. Data rights are also pivotal to identifying potential biases and claiming labour rights before courts and national authorities (i.e., data protection authorities, equality bodies and labour authorities). More broadly, increasing transparency of algorithmic systems should also improve legal certainty and ensure a level playing field between digital labour platforms and offline providers. This is strongly related to the question of employment status, since the exercise of managerial functions and control through automated decision-making and monitoring has been recognised as one of the indicative criteria of a subordinate employment relationship. Thus, the regulation of algorithmic management has much broader implications than 'solely' protecting the personal data of people providing their

[1] Article 2 (1) (a) Platform Work Directive defines a digital labour platform as a 'natural or legal person providing a service which meets all of the following requirements: (i) it is provided, at least in part, at a distance through electronic means, such as 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, irrespective of whether that work is performed online or in a certain location; (iv) it involves the use of automated monitoring or decision-making systems'.

[2] Recital 4 PWD.

services through digital labour platforms. Rather, it is strictly related with the other goal of the Directive, namely the improvement of working conditions of platform workers. Even if the regulatory intervention in these fields has a different legal basis (Article 16 TFEU and Article 153(1) (b) TFEU respectively), these objectives mutually reinforce each other, and one is not subordinate to the other (Recital 16).

The term algorithmic management is not a statutory but primarily a doctrinal one. It is often attributed to Lee and colleagues, who were first to refer to it in 2015, describing it as a practice where the algorithms perform functions normally executed by human managers.[3] Almost ten years into the heated, interdisciplinary debate on this sociotechnical phenomenon, there is no commonly agreed and comprehensive definition of algorithmic management in literature. Some taxonomies focus more on the organisational coordination of labour,[4] others on monitoring and control,[5] and yet others on the whole spectrum of managerial prerogatives.[6] Still, the juxtaposition of algorithmic versus human management remains at the core of most conceptualisations[7] and is echoed in the Preamble of the Directive, which speaks of 'algorithms increasingly replace[ing] functions that managers usually perform in businesses.'[8] The 'techno-human dualism'[8] underlying this definition does not imply, however, a techno-deterministic or techno-centric view on algorithmic management, whereby the role of a human is secondary to technology. To the contrary, the Directive proposes a set of human-in-the-loop safeguards, which corresponds to the 'techno-human entanglement' approach premised on the assumption that humans can effectively mediate technological impact on the labour process.[9]

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[3] LEE, Min Kyung, KUSBIT, Daniel, METSKY, Evan, and DABBISH, Laura. Working with machines: The impact of algorithmic, data-driven management on human workers. Proceedings of the 33rd Annual ACM SIGCHI Conference, Seoul, South Korea, 2015.

[4] BAIOCCO Sara, FERNANDEZ-MACÍAS Enrique, RANI Uma, PESOLE Annarosa. The Algorithmic Management of work and its implications in different contexts. *Background Paper Series of the Joint EUILO Project "Building Partnerships on the Future of Work"*. Geneva, 2022.

[5] E.g., Duggan and colleagues (2019) define it as a system of control whereby algorithms are responsibile for taking decisions affecting workers, diminishing human involvement and oversight of the labour process. See DUGGAN, James, SHERMAN Ultan, CARBERY Ronan, and MCDONNELL, Anthony. Algorithmic management and app-work in the gig economy: A research agenda for employment relations and HRM. Human Resource Management Journal, 30(1), 114-132.

[6] Wood conceptualised AM as 'software to automate organisational functions traditionally carried out by human managers'. See WOOD, Alex J. Algorithmic management consequences for work organisation and working conditions, JRC Working Papers Series on Labour, Education and Technology 2021/07, European Commission, 2021.

[7] Mateescu and Nguyen understand algorithmic management as a set of tools and technological processes that manage workers through digital means, replacing humans who direct and supervise workers with technology. See MATEESCU, Alexandra and NGUYEN, Aiha. Explainer: Algorithmic management in the workplace. 2019. Available at https://datasociety.net/wpcontent/uploads/2019/02/DS_Algorithmic _Management_E xplainer.pdf Recital 8 PWD.

[8] SULLIVAN Rick, VEEN Alex, and RIEMER Kai. Furthering engaged algorithmic management research: Surfacing foundational positions through a hermeneutic literature analysis. Information and Organization Volume 34, Issue 4, December 2024, 100528.

[9] Ibid.

The main goal of this paper is to assess in how far the measures laid down in the Platform Work Directive, adopted by the Council on the 14th of October 2024,[10] can be successful in shaping of a fair and equitable power relationship between platforms and people performing work through them, ultimately improving their working conditions.

2. An analysis of the 'algorithmic management' provisions of the Platform Work Directive

2.1. Limitations on processing of personal data

Chapter III of the Platform Work Directive is opened by Article 7, which draws important red lines by limiting the material and temporal scope of collecting and processing personal data and delineating its purposes. First, it puts a ban on the processing of any personal data on the emotional or psychological state (Article 7 (1) (a)), and data in relation to private conversations (Article 7 (1) (b)). Second, it prohibits data collection while the person performing platform work is not working or offering to work (Article 7 (1) (c)). Third, it does not allow data processing to make predictions about the exercise of fundamental rights (Article 7 (1) (d)). Neither does it let it be applied to infer certain protected characteristics of workers, such as racial or ethnic origin, migration status, political opinions, religious or philosophical beliefs, disability, state of health, including chronic disease or HIV status, the emotional or psychological state, trade union membership, a person's sex life or sexual orientation (Article 7 (1) e)). Finally, it excludes the processing of biometric data to establish that person's identity by comparing that data to stored biometric data of individuals in a database (Article 7 (1) (f)). For the definition of biometric data, the Platform Work Directive refers to the General Data Protection Regulation, which defines it in Article 4 point 14 as 'personal data resulting from specific technical processing relating to the physical, physiological or behavioural characteristics of a natural person, which allow or confirm the unique identification of that natural person, such as facial images or dactyloscopic data'.[11] Overall, Article 7 PWD has considerably expanded the catalogue of prohibited grounds of processing of personal data as compared to the original Proposal made by the EU Commission in December 2021. It has substituted a more general formula in that Proposal, prohibiting platforms from processing any personal data concerning platform workers 'that are not intrinsically connected to and strictly necessary for the performance of the contract between the platform worker and the digital labour platform'.[12] The final text built upon the GDPR and fundamental rights instrument (e.g., Article 8 of the Charter of Fundamental Rights

[10] The present analysis is based on the text available at https://data.consilium.europa.eu/doc/document/PE-89-2024-INIT/en/pdf.

[11] See also the definition of biometric data in the Recitals 42-43 PWD.

[12] Article 6 (5) of the Commission Proposal.

of the EU), contributing to the legal certainty and consistency of the legal framework. Making these requirements more specific renders their operationalisation easier.[13]

In addition to the red lines included in Article 7 PWD, Recital 39 states that digital labour platforms should not process the personal data of persons performing platform work on the basis that they have given consent to it. This is motivated by the fact that persons performing platform work do not have a genuinely free choice and cannot refuse or withdraw consent without detriment to their contractual relationship, because of the imbalance of power embedded in the platform-mediated work relationship. This corresponds with the provision of the Preamble to the GDPR, and with the interpretation of Article 29 WP Opinion, according to which the power asymmetry between the employer and the employee makes it highly unlikely that an employee's consent is freely given, without fear or experience of negative repercussions of a refusal of such consent.[14] As concluded by Article 29 WP, consent cannot be the legal basis in the majority of cases.[15]

Notably, Article 7 of the Platform Work Directive has a remarkably broad scope, as it applies not only to automated decision-making and automated monitoring as defined in Article 2 of this instrument but also to 'automated systems supporting or taking decisions that affect persons performing platform work in any manner'. This implies that also systems that do not affect them 'significantly', but even to a minor extent, are covered (Article 7 (3)).

Moreover, the personal scope of this provision is exceptionally broad. Not only is it detached from the employment status, covering people performing platform work without an employment contract, but it also encompasses those who undergo a selection procedure (Article 7 (2)). This extension is crucial given the impact of predictive HRM algorithms on the selection process, which is increasingly carried out without human intervention (e.g., automated admission to the online platform or task assignment based on selected worker characteristics).[16]

The next provision of the Directive, Article 8, has not been originally included in the Commission's Proposal. This new addition specifies the rule of Article 35 GDPR, which provides that processing of personal data by a digital labour platform by algorithmic management likely results in a high risk to the rights and freedoms of natural persons within the meaning of Article 35 GDPR. Digital labour platforms are therefore

[13] GUGLIELMETTI, Mario. Automated work and workers' rights: platform work and AI work management systems. In Artificial intelligence, labour and society, Aída Ponce Del Castillo (ed.), European Trade Union Institute (ETUI), Brussels, 2024. Available at https://www.etui.org/sites/default/files/2024-03/Artificial%20intelligence%2C%20labour%20and%20society_2024.pdf#page=129, p. 130.

[14] Opinion 10/2006 on the processing of personal data by the Society for Worldwide Interbank Financial Telecommunication (SWIFT), available at https://ec.europa.eu/justice/article-29/documentation/opinion-recommendation/files/2006/wp128_en.pdf

[15] See also the Preamble of the GDPR, which states that a clear imbalance between the data subject and the controller means that consent should not be considered a valid legal basis for the processing of data.

[16] DUGGAN, James, SHERMAN, Ultan, CARBERY, Ronan, MCDONNELL, Anthony. Algorithmic management and app-work in the gig economy: A research agenda for employment relations and HRM. Human Resource Management Journal, 30(1), 2020, 114-132.

obliged to carry out a data protection impact assessment (DPIA) in line with Article 35 GDPR. In brief, a DPIA is a process designed to identify risks arising out of the processing of personal data and to minimise these risks as far and as early as possible. It is also specified that, in doing so, platforms shall seek the views of persons performing platform work and their representatives and that the results of DPIA shall be made available to workers' representatives. The explicit mention of the collective dimension is a significant step forward and has long been advocated for by scholars.[17] Details of the consultation and information procedure in this regard have not been provided, however.

2.2. Transparency in algorithmic management systems

Next, Article 9 of the Directive moves on to provisions mandating transparency in algorithmic management systems. This provision lays down the fundaments for realising the goals of the Directive, since transparency is known as 'the first step towards genuine accountability.'[18] The personal scope of this Article is broad, covering persons performing platform work (regardless of employment status) and persons undergoing the recruitment and selection procedure as regards the automated monitoring and decision-making systems applicable to them (Article 9 (5)). Transparency rights also have a collective dimension, as they are granted to workers' representatives, who shall receive comprehensive and detailed information about all relevant systems and their features. Such information should be shared with them prior to the use of those systems or to the introduction of changes affecting working conditions, the organisation of work or monitoring work performance and, 'at any time upon their request'. Competent national authorities shall likewise obtain comprehensive and detailed information at any time upon their request.

The material scope of this provision is very comprehensive. Digital labour platforms are obliged to disclose information about the use of automated monitoring and automated decision-making systems as regards all types of decisions supported or taken by ADMSs, even when the algorithmically driven decisions do not affect persons performing platform work in a significant manner (9 (1) (a)). Article 9 (1) provision fills an important gap of the GDPR, under which data controllers are not obliged to inform subjects about the existence of algorithms which, according to them, are not covered by Article 22(1) GDPR, as long they comply with the information obligations under Articles 13-15 GDPR.[19] Only if the decision is fully automated and produces legal

[17] E.g., ADAMS-PRASSL, Jeremias. The Challenges of Management by Algorithm: Exploring Individual and Collective Aspects. Gyulavári, Tamás , and Emanuele Menegatti, ed. Decent Work in the Digital Age: European and Comparative Perspectives. Oxford: Hart Publishing, 2022. Bloomsbury Collections, p. 241.

[18] PONCE DEL CASTILLO, Aída and NARANJO, Diego. *Regulating algorithmic management An assessment of the EC's draft Directive on improving working conditions in platform work.* ETUI Policy Brief 2022.08, available at https://bit.ly/4f5y9sj

[19] HIESSL, Christina. Case Law on Algorithmic Management at the Workplace: Cross-European Comparative Analysis and Tentative Conclusions. 2023, p. 38. Available at https://ssrn.com/abstract=3982735

effects or similarly significant effects within the meaning of Article 22(1) GDPR will the information duties under that instrument be triggered. The Platform Work Directive, in turn, does not set either of these requirements, making it possible for platform workers' to access information on algorithmic management systems not contingent on the level of their automation. This broad scope overcomes the need for nuanced, technical debates on whether automation of AMS and ADMS on a given platform is full, partial, or conditional (Article 9 (1)).[20] Under Article 9 PWD, besides the information about the very fact that such systems are in use or are being introduced; the information shall cover the categories of automated or semi-automated decisions, categories of data and main parameters that such systems take into account, as well as the 'relative importance' of such parameters. This should include an information about how the personal data and behaviour of the person performing platform work influence the (semi-)automated decisions. Moreover, the grounds for certain decisions, i.e., about the account restriction, suspension or termination, the payment refusal after the work performance, and about their contractual status or equivalent should be made available. As regards automated monitoring systems, persons performing platform work should be informed about their usage and/or introduction; the categories of data and actions subject to this kind of monitoring, including evaluation by the end user; the aim of the monitoring and how it should be achieved; and the (categories of) recipients of the personal data processed by such systems, and its potential transmission or transfer. All this information about automated decision-making and automated monitoring systems should be provided in a written form and be easy to access and comprehend (Article 9 (2)). Moreover, at the latest on the first working day, before the introduction of changes, or upon their request, platforms shall inform people performing work through them about the systems and their features that directly affect them and their working conditions. The information shall be 'concise' but, upon their request, 'comprehensive and detailed' (Article 9 (3)).

Finally, Article 9 (6) grants persons performing platform work the right to the portability of personal data, including ratings and reviews. Digital labour platforms shall give them tools to facilitate the effective exercise of their portability rights, referred to in Article 20 of the General Data Protection Regulation. If a person performing platform work requests it, platforms shall transmit such personal data directly to a third party. This right is yet another valuable addition to the text of the Commission's proposal, which was not included in the original text, as it was deemed to be disproportionately burdensome for platform businesses, especially for small companies.[21] Ensuring intero-

[20] On the level of automation of algorithmic management in digital platform work, see e.g., BAIOCCO, Sara, FERNANDEZ-MACÍAS Enrique, RANI, Uma, and PESOLE Annarosa. The Algorithmic Management of work and its implications in different contexts. *Background Paper Series of the Joint EU-ILO Project "Building Partnerships on the Future of Work"*. Geneva, 2022, p. 6. As observed by the authors, 'full automation' would be technically possible only in the case of general AI, and even the most advanced models of algorithmic management applied by digital labour platforms require extensive human intervention at various stages.

[21] COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT REPORT Accom-

perability of platforms' ratings should counter the so-called 'lock-in effect', which creates a dependency of platform workers on a given platform, preventing them from pursuing a career on multiple digital labour platforms independently.

Overall, Article 9 provides detailed and comprehensive safeguards regarding the so-called *ex-ante* transparency of algorithmic management systems.[22] The best illustration of the pertinence of workers' information and data access rights are cases decided by data protection authorities and courts in this regard, based on the GDPR. An example is the case of drivers working through the Ola platform, ruled by the Amsterdam Court of Appeal on the 4th of April 2023.[23] Drivers, supported by the App Drivers & Couriers Union and Worker Info Exchange, demanded access to their personal data processed by the platform, e.g., customer transactions, booking cancellation history, booking acceptance history, ratings, and GPS data for each trip. Their claim was based on Article 15(1) (h) GDPR, which provides for the right to be informed of the existence of automated decision-making, including profiling; the right to meaningful information about the logic involved; and the right to be informed of the significance and the envisaged consequences of such processing for the data subject. In this case, this article proved to be a powerful tool granting them access to multiple categories of data, such as 'device data' (i.e., data on the mobile phones used to carry out their rides), 'fraud probability score', or their 'earning profile'.

Still, this and similar cases demonstrate significant limitations of the GDPR in litigating workers' data rights.[24] Firstly, as mentioned above, workers can exercise their rights to data access in algorithmic management under Article 15 (1) (h) GDPR only if the decision is fully automated and produces legal effects or similarly significant effects within the meaning of Article 22(1) GDPR. If an algorithmic decision is made with human involvement (which is most typically the case), or a fully automated decision does not have a legal or significant effect, the algorithmic transparency requirement under Article 15(1)(h) does not apply. These criteria may give rise to interpretative doubts, as was the case in the Ola judgment.[25] Secondly, the extent of algorithmic management

panying the document Proposal for a Directive of the European Parliament and of the Council On improving working conditions in platform work. Available at https://data.consilium.europa.eu/doc/document/ST-14450-2021-ADD-2/en/pdf.

[22] VEALE, Michael, SILBERMAN, Michael 'Six' and BINNS, Reuben, Fortifying the algorithmic management provisions in the proposed Platform Work Directive. *European Labour Law Journal*, 14(2), 2023, p. 331.

[23] Case Number 200.295.806/01. An unofficial English translation of the judgment is available at https://5b88ae42-7f11-4060-85ff-4724bbfed648.usrfiles.com/ugd/5b88ae_de414334d89844bea61deaaebedfbbfe.pdf.

[24] For a comprehensive overview of cases concerning algorithmic management at work, see HIESSL, Christina. Algorithmic Management in the Workplace: Taking Stock of Case Law and Litigation in Europe. Hungarian Labour Law e-Journal. 2022/2, available at https://hllj.hu/letolt/2022_2_a/01_ChHiessl_hllj_uj_2022_2.pdf.

[25] For example, the 'fraud probability score' was qualified in the 1st instance as a District court to be 'profiling' within the meaning of Art. 4 (4) GDPR, but the drivers had not shown that automated decisions had been taken on the basis of this risk profile. The Court of Appeals reversed that decision and held that only the Guardian system, which was used to detect irregularities, did not qualify as a solely automated system, after Ola provided sufficient evidence that passengers would be contacted by staff.

information remains unclear, in particular concerning the interpretation of what constitutes 'meaningful information about the logic involved and the significance and the envisaged consequence'. Thirdly, workers' right to access in the context of algorithmic management can be limited by the intellectual property exception (Recital 63 of the GDPR) and by employers' protection against 'manisfestly excessive' requests (Article 12(5) GDPR). A case in point is the case decided by the District Court of Amsterdam, in which Uber demanded the applicants to specify the personal data they wanted to receive. The platform's request was approved by the Court, which found workers' request for the right of access request to be excessively general and not sufficiently specified.[26] As pointed out by Abraha, the fact that employers can ask workers to specify the data they demand can significantly limit workers' right of access in the context of algorithmic management, since usually they have a limited understanding of the collected and processed categories of personal data.[27] The Platform Work Directive specifies the categories of data to which workers should be granted access to, thereby filling critical gaps under GDPR and increasing legal certainty with regard to platforms' transparency obligations.

2.3. Human oversight

In Article 10, the Platform Work Directive shifts the focus from *ex-ante* transparency measures of automated systems to their human oversight. It provides that platforms shall oversee and evaluate the impact of individual decisions taken or supported by algorithmic management systems used by the digital labour platforms on persons performing platform work. This should consider the impact of automated systems on the working conditions of people working through platforms, as well as their right to equal treatment at work. Should a high risk of discrimination or infringement of rights by automated decision-making or automated monitoring systems be identified, the platform is obliged to put in place necessary steps to avoid such decisions in the future. This may include, 'if appropriate', a modification or discontinuation of the algorithmic management systems. The person in charge of that process shall be adequately qualified and trained and, enjoy all the authority including the power to override automated decisions, and be protected from disciplinary measures or adverse treatment for exercising their functions. The oversight and evaluation process should take place regularly, at a minimum of every two years. This threshold might not be sufficient given the high pace of tech development; it would have been more appropriate to mandate the evaluation of the impact of individual decisions taken or augmented by automated systems every time a new system is introduced.

Article 10 PWD is certainly a much-needed recognition of the potentially negative impact of algorithmic management on working conditions and, in particular, of the

[26] Amsterdam Court of Appeal, Case number 200295.747/01. Unofficial English translation is available at https://5b88ae42-7f11-4060-85ff-4724bbfed648.usrfiles.com/ugd/5b88ae_21d84f102fee4f3888efcec9c

[27] ABRAHA, Halefom. Regulating algorithmic employment decisions through data protection law. *European Labour Law Journal*, *14*(2), 2023, p. 179.

die-hard problem of discrimination in platform work. There was no explicit mention of the risk of discrimination in the original Proposal by the Commission, which makes this addition an important advancement towards countering inequalities in platform work. One of the well-documented risks in this context is algorithmic wage discrimination, described by Dubal as a wage pricing technique whereby individual workers are paid differently based on intransparent calculations driven by data on location, individual behavior, demand, and supply, among other factors. It not only encompasses remuneration for completed work but also all decisions on the allocation of work and working time.[28] Another often-studied example is gender inequality, which is known to be reproduced and institutionalised by platforms' design choices and affordances.[29] This is an important gap given that discrimination, e.g., on grounds of gender or age, often occurs precisely at the time of selection. Cases of discrimination in digital labour markets are also documented to occur at the hiring stage.[30] Regrettably, however, human oversight under Article 10 PWD does not extend to people undergoing the recruitment procedure, as in the case of red lines with data processing under Article 7, but is limited to detecting discrimination while work is performed.

Workers' representatives also have a role to play in the human oversight procedures: they shall be involved in the oversight and evaluation procedure (Article 10 (1)) and obtain information on the evaluation of algorithmic systems (Article 10 (4)). Moreover, platforms shall make this information available to persons performing platform work and the competent national authorities upon their request. An important limitation of the effectiveness of this provision is the lack of external auditors to control whether the adjustments taken by the platform in the case of rights are adequate. National authorities have not been given any special competencies in this regard- they can only request information on the outcome of the oversight and evaluation procedure.

Finally, Article 10 (5) PWD lays down a special regime for decisions on restriction, suspension or termination of the contractual relationship or the account of a person performing platform work, mandating that it shall be taken by a human being (Article 10 (5)). This is a much-needed response to calls from experts to introduce a clear ban on 'robo-firing',[31] and a step forward as compared to the GDPR, where the prohibition of fully automated decisions that produce legal or similarly significant legal effects may be limited by a 'contractual necessity' clause (Article 22(2)).[32] At the same time, it is

[28] DUBAL, Veena. On algorithmic wage discrimination. *Columbia Law Review*, 123(7), 1929-1992. 2023.

[29] RENAN BARZILAY, Arianne. The Technologies of Discrimination: How Platforms Cultivate Gender Inequality. *The Law & Ethics of Human Rights*, vol. 13, no. 2, 2019, 179-202.

[30] FIERS, Floor. Inequality and discrimination in the online labor market: A scoping review. *New Media & Society*, *25*(12), 2023, 3714-3734.

[31] PONCE DEL CASTILLO, Aída. Regulating algorithmic management in the Platform Work Directive: correcting risky deviations. Global Workplace Law & Policy. Available at https://global-workplace-lawand-policy.kluwerlawonline.com/2023/11/22/regulating-algorithmic-management-in-the-platform-workdirective-correcting-risky-deviations/

[32] RAINONE, Silvia and ALOISI, Antonio; The EU Platform Work Directive What's new, what's missing, what's next? ETUI Policy Brief, 2024.06, August, available at bit.ly/4eIMYRA.

regrettable that only these three categories of decisions have been elevated to that status, unlike other important decisions impacting the contractual status and working conditions, although it is surely one of their main vulnerabilities.

2.4. Human review

Article 11 PWD moves on to provisions on human review, sometimes referred to as '*ex post* transparency'.[33] First, persons performing platform work have the right to be informed about any decision taken or supported by an automated decision-making system. That explanation shall be presented without undue delay, orally or in writing, in a transparent and intelligible manner. Moreover, anyone performing platform work should have access to a designated contact person who can clarify the factors that have led to the decision.

Further, some categories of algorithmic decisions are subject to a stricter transparency regime, which requires a written statement of reasons provided without undue delay, at the latest on the day when it takes effect. This concerns decisions on the account restriction, suspension or termination; payment refusal, contractual status, as well as 'any other decision affecting the essential aspects of the employment or other contractual relationships.' Unlike in the original Proposal of the Platform Work Directive, the catalogue of decisions on the essential aspects of the work relationship between platforms and people performing platform work is open. While the requirement of a written form for those decisions is an important safeguard, the protection could have been stronger by requiring a notice period for changes to essential aspects of the contract, in particular in the case of dismissal.[34]

Besides the information on the (semi-) automated decisions, persons performing platform work shall be able to request a review of such decisions, including decisions that do not concern essential aspects of their contract. The same right is granted to representatives acting on behalf of the persons performing platform work with regard to personal data (Article 11 (2) in connection with Article 15). In response, platforms shall formulate a written, 'sufficiently precise and adequately substantiated reply' reply and communicate it without undue delay, maximum within two weeks of the request's receipt. It is worth pointing out that the two-week is an extension of the previously one-week period, which could have been extended only to micro, small, or medium-sized enterprises.

This human review is an important tool for workers and their representatives, in case they are dissatisfied with the explanation or the written statement of reasons ob-

[33] VEALE, Michael, SILBERMAN, Michael 'Six' and BINNS, Reuben. Fortifying the algorithmic management provisions in the proposed Platform Work Directive. *European Labour Law Journal*, 14(2), 2023.

[34] For example, Ontario's Digital Workers' Rights Act 2022 provides that 'where a platform worker's account is restricted, suspended or terminated by an automated decision-making system, the grounds for such a decision must also be made available to the platform worker, and the worker must be provided with two weeks' written notice of removal prior to a removal access. See OGUNDE, Fife. Algorithmic management of platform workers: An examination of the Canadian and European approaches to regulation. *European Labour Law Journal*, 2024, p. 11.

tained. The *ex-post* explanations of specific model outputs (the so-called 'local explanations') are complementary to the 'ex-ante', 'global' explanations concerning the general functioning of algorithmic mechanisms, enshrined in Article 9 PWD.[35] While both types of explanations are useful, qualitative research suggests that workers attach more importance to the 'local', concrete explanations and human review than to gaining access to general data. For example, a study of platform workers in the UK showed that while only 12 percent reported they would need access to info on platform AI or algorithmic usage and a right to request a personal and understandable explanation, human review of automated decision-making systems was indicated by 22 percent of respondents as a useful one.[36] Scholars, practitioners, and stakeholders have long voiced concerns about the risk that the information categories of data will not be fully understandable to those concerned, and have perceived the ex-post transparency obligations as more effective than the more abstract information rights concerning the systemic features of the algorithms applied by the platforms.

Article 11 (3) PWD mandates a digital labour platform to rectify any rights infringement caused by automated decision making or monitoring systems. Should a rectification not be possible, an adequate compensation should be offered. Platform's intervention may include a modification of the automated decision-making system or a discontinuance of its use. The reaction should be without delay and in any case within two weeks of the adoption of the decision. The obligations in this regard mirror those with regard to human overview set out in Article 10 (3) (see above). Article 11 does not specify which rights infringement is referred to. This provision should be interpreted broadly, as covering at least fundamental rights protected by the Charter of Fundamental Rights of the EU,[37] but not being limited to them.

The requirement to take necessary steps to avoid rights-infringing provisions has not been envisaged in the original Directive proposal put forward by the Commission.It constitutes a crucially important addition. What is missing, however, are provisions concerning reporting mechanisms and oversight over the measures taken by the platform to amend a deficient ADM or AMS, much as in the case of the detection of risk of discrimination or negative impact on working conditions under Article 10. The decision about the appropriate steps is entirely within the platforms' discretion. Regrettably, the proposal made in the European Parliament Report, which specified that in case an impact assessment found non-compliance with workers' rights and health and safety protection, data protection, labour and other competent authorities shall take coordinated measures

[35] VEALE, Michael, SILBERMAN, Michael 'Six', BINNS, Reuben, Fortifying the algorithmic management provisions in the proposed Platform Work Directive. *European Labour Law Journal*, 14(2), 2023.

[36] MARTINDALE, Nicholas, WOOD, Alex J., and BURCHELL, Brendan. What do platform workers in the UK gig economy want? *British Journal of Industrial Relations* 62(3), 2024, 542-567.

[37] The Directive refers to the several provisions of the Charter of Fundamental Rights of the EU in its Preamble (Recital 2), i.e., Article 31 on the right of every worker to fair and just working conditions; Article 27 on workers' right to information and consultation within the undertaking; Article 8 on the right to the protection of personal data; Article 12 on the right to freedom of assembly and of association, Article 16 on the freedom to conduct a business, and Article 21 on the right to non-discrimination.

to enforce those provisions, has not been followed. As expressed in that Report, concurrent supervision (i.e,. cooperation between the authorities as regards oversight) and the cumulative applicability of GDPR and labour law forms of redress, would be essential.[38] In the final version of the Directive, instead, the provisions on cooperation between data protection supervisory authorities and other competent authorities seem to focus only on information exchange. The provision would have been considerably strengthened by connecting it at least with a correlated obligation to declare the action taken to repair the system, submitted to the authorization of a competent national authority, or an external body (e.g., an Ombudsman).

Another important limitation of Article 11 relates to its personal scope, namely the exclusion of persons performing platform work who are also business users as defined in Article 2, point (1), of Regulation (EU) 2019/1150 (Article 11 (5)). This exception is remarkable given that the provision applies also to those performing platform work without employment status. The category of a genuinely self-employed platform worker tends to overlap with the definition of a business user.[39][40] Thus, this exclusion may render the protection effectively limited to platform workers with an employment status.

2.5. Safety and health

'Promoting transparency, fairness, human oversight, *safety* and accountability in algorithmic management in platform work' is one of the goals of the Directive expressed in Article 1 (1) (b) PWD. Ensuring the safety of platform work has gained prominence in the final instrument compared to its previous versions. Not only has it been declared as one of the Directive's objectives,[41] but also a separate article, i.e., Article 12, has been devoted to it.[42] This can be read as a firm recognition of the algorithmic management as a factor aggravating OSH-related risks of platform workers. Research provides ample evidence on how automated monitoring and decision-making systems generate psychosocial risks.[43] Automated distribution of tasks, issuing instructions for work performance, as well as continuous and intrusive monitoring, have salient health and safety

[38] REPORT on the proposal for a directive of the European Parliament and of the Council on improving working conditions in platform work (COM(2021)0762 – C9-0454/2021 – 2021/0414(COD)), 21.12.2022, available at https://www.europarl.europa.eu/doceo/document/A-9-2022-0301_EN.html.

[39] Recital 65 PWD

[40] Article 2 (1) of the Platform to Business Regulation defines a business user as 'any private individual acting in a commercial or professional capacity who, or any legal person which, through online intermediation services offers goods or services to consumers for purposes relating to its trade, business, craft or profession'

[41] The original proposal has declared only transparency, fairness, and accountability in algorithmic management as the Directive's objectives.

[42] In the original Proposal, this provision has been part of the provision on human monitoring of automated systems (previously Article 8).

[43] See e.g., BÉRASTÉGUI, Pierre. *Exposure to psychosocial risk factors in the gig economy: a systematic review*, Brussels, ETUI, 2021. Available at bit.ly/4049gJ9.

implications. Incentivising platform workers through the system of nudges and penalties to increase their work intensity and pace, often expecting them to surpass their limits, is a classical example of how algorithms put platform workers at risk.[44]

Safeguards laid down in Article 12 PWD should protect platform workers from an algorithmically-driven qualitative and quantitative overload, whereby what is required surpasses their expertise and abilities. Under this provision, platforms shall carry out a risk evaluation concerning the impact of algorithmic management on workers' safety and health. In particular, possible risks of work-related accidents, and psychosocial and ergonomic risks should be considered. Moreover, platforms shall evaluate whether the safeguards in place are adequate for the identified risks. They shall also introduce appropriate preventive and protective measures. This is an important step towards responsabilisation of platforms for the safety and health of people working through them. Importantly, for the first time in the EU legislation, explicit reference has been made to psychosocial risks, including undue pressure at work.[45] Since the exertion of pressure on workers as an indirect way of optimising their performance is driving the core model of the platform economy, it will be intriguing to see how this provision is applied and mobilised in courts and, in particular, what will be construed as 'undue pressure'. This provision certainly provides ample ground for litigation.[46]

Article 12 PWD does not go so far as to require platforms to 'program' OSH compliance into its algorithm, as could have been the case. It would be conceivable to require platforms to put in place mechanisms ensuring respect for working time regulations, among others. Lack of such an obligation is a missed opportunity for ensuring that algorithmic management not only does not exert detrimental effects on workers' safety and health but also enhances it by enhancing the enforcement of the OSH regulations.

Moreover, the provision does not contain any formal, procedural requirements regarding the risk assessment process. It does not specify the regularity with which it should be conducted, or the exact information to be provided. In particular, it is not clear whether the risk management should be conducted periodically, upon request, or before the introduction of the system. Article 12 of the Directive is silent also on the involvement of competent authorities, such as labour inspectorates, in obtaining access to information on OSH compliance of the algorithmic systems. The vagueness of this provision can undermine the effectiveness of the due diligence process platforms have to conduct. While Article 12 of the Directive mandates 'effective information and consultation and the participation of platform workers and/or their representatives', it could have gone further and, taking inspiration from the OSH Framework Directive. The latter instrument provided platform workers and their representatives also the right

[44] European Agency for Safety and Health at Work. Digital platform work and occupational safety and health: a review. 2021. Available at bit.ly/4dK7obx

[45] CEFALIELLO, Aude. An Occupational Health and Safety Perspective on EU Initiatives to Regulate Platform Work: Patching up Gaps or Structural Game Changers? Journal of work health and safety regulation. 2023 (1), 117-137.

[46] Ibid.

to appeal to national authorities responsible for OSH if they consider that the measures adopted at work do not protect them adequately (Article 11(6) Directive 89/391/EEC). As the provision stands now, there is no dedicated procedure provided for platform workers whose rights under Article 12 are not complied with.

It should be recalled, however, that OSH risks in platform work are multi-layered, as they do not stem only from algorithmic management.[47] They are related to the very nature of platform work, i.e., to precariousness, work fragmentation, instability, and isolation. Some risks, e.g., societal anxiety or even depression, may be related to mundane, repetitive tasks platform workers have to perform, and their perception of 'purposefulness'.[48] In other words, algorithmic management is an important factor triggering health and safety risks of platform workers, but by no means not the only one. Thus, even if Article 12 PWD is a welcome and significant step forward, it is far from ensuring comprehensive OSH protection. It cannot be seen as a panacea to all safety and health risks faced by platform workers.

Protecting workers' safety and health is even more complex in the configurations involving the client(s), to whom OSH risks can be attributed. A case in point could be the provision of inadequate equipment for a platform-mediated cleaner, or a pressure exerted by the client to drive faster. Article 12 (5) provides that Member States shall ensure platforms take preventive measures 'to ensure safety and health of platform workers, including from violence and harassment'. This provision stands out as the only one that seeks to address the duties of the platform in view of other party that may pose the risk to platform workers' health and safety. The Directive could have taken more account of these complex multi-partite constellations, furhter clarifying the responsibilities of platforms in this context.

The core problem regarding their inadequate protection relates to the personal scope of this provision, which is restricted to platform workers with an employment status. Platforms were therefore obliged to comply with a range of obligations under that Directive, as long as platform workers fall under the definition of a worker. The Platform Work Directive does not overcome the limitation of the OSH Framework Directive, which similarly applies only to employees. The (mis)classification of platform workers as independent contractors, and the persisting lack of clarity regarding the employment categorisation, is a key factor 'diluting' OSH responsibilities, challenging the applicability of OSH safeguards in the platform work context.[49] This is a critical issue, considering that all people performing platform work, irrespective of their employment contract, are exposed to physical

[47] Ibid, p. 221.

[48] This is experienced especially by platform workers on crowdwork platforms. According to some studies, approximately 50% of crowdworkers on Amazon Mechanical Turk experience clinical levels of social anxiety, while the figure for the general population lies at around 7-8%. See BÉRASTÉGUI, Pierre. *Exposure to psychosocial risk factors in the gig economy: a systematic review*, Brussels, ETUI, 2021, p. 16.

[49] LYKKE NIELSEN Mette, SLOTH LAURSEN Cæcilie, and DYREBORG Johnny. Who takes care of safety and health among young workers? Responsibilization of OSH in the platform economy. Safety Science Volume 149, 2022, 105674.

and psychosocial risk factors related to platform work. While the issue of misclassification is sought to be addressed by the other set of provisions of the Directive,[50] not all people performing platform work will benefit from the employment presumption and will continue to be exposed to high algorithmic-driven OSH risks. Neither will they be able to enjoy collective representation in matters related to the protection of their safety and health.

2.6. Information and consultation

The last three provisions in Chapter III of the Platform Work Directive are dedicated to collective representation. While vast entitlements have been afforded to workers' representatives in a range of provisions in Chapter III[51] and other chapters of the Directive,[52] Articles 13-15 PWD introduce important specifications and complement the other provisions. First, Article 13 (2) clarifies that Member States shall ensure that information and consultation of workers' representatives by digital labour platforms also covers decisions likely to lead to the introduction of or to substantial changes in the use of automated monitoring or decision-making systems. Moreover, under Article 13 (3), the platform workers' representatives are entitled to the assistance of an expert of their choice, should it be necessary for them to investigate the matter that is the subject of information and consultation and issue an opinion. The expenses for the expert shall be borne by the digital labour platform if a platform has over 250 workers in a given Member State, provided that conditions of proportionality are met. Further, Article 14 stipulates that platform workers who have no representatives should be directly informed by the platform of decisions likely to lead to the introduction of or substantial changes in the use of algorithmic management systems. The information shall be provided in writing and be presented in a transparent intelligible and easily accessible form. Finally, Article 15 introduces constraints for representatives of persons performing platform work who do not enjoy employment status. Their access to information is limited strictly to their action on behalf of those providing services through platforms with regard to the protection of their personal data. This restriction stems from the legal basis, i.e., Article 16 TFEU.

[50] Articles 4-6 of the Platform Work Directive concerning the employment status.

[51] To name a few examples analysed above, workers' representatives have the right to obtain the data protection impact assessment under Article 8 (2), the right to be informed about the use of automated monitoring or decision-making systems under Article 9, and the right to be involved in human oversight of algorithmic systems under Article 10 (1).

[52] Article 19 provides that Member States shall ensure that representatives of persons performing platform work may engage in any procedure to enforce any of the rights or obligations arising from the Directive, including its algorithmic management provisions. Moreover, Article 28 clarifies that Member States are allowed to provide for more specific rules to ensure the protection of the rights and freedoms in respect of the processing of persons performing platform work's personal data under Articles 9, 10 and 11. They may also allow the social partners to maintain, negotiate, conclude and enforce collective agreements, in accordance with national law or practice, which, while respecting the overall protection of platform workers, establish arrangements concerning platform work which differ from those referred to in Articles 12 and 13.

3. Discussion and conclusion

Chapter III of the Platform Work Directive has been carefully drafted to respond, in a tailored and targeted way, to the most pertinent risks posed or aggravated by automated monitoring and automated decision-making systems used by digital labour platforms. It aptly addresses some of the key areas of concern, including insufficient data protection, risks for safety and health at work, lack of transparency, and adverse impact on working conditions. A comprehensive set of 'algorithmic rights' is provided to all people performing platform work, regardless of their employment status.

The new legal act decisively strengthens the existing protection under the General Data Protection Regulation and other instruments, including the OSH Framework Directive and the Directives in the field of anti-discrimination. The Platform Work Directive provides for a much more advanced set of protections than originally proposed by the Commission in December 2021, taking account of a vast bulk of the criticism that had been leveraged against the previous version by experts and activists. The main point of concern relates to the sectoral limitation of this instrument. In view of the 'spillover' of algorithmic management from digital platforms to other, more traditional segments of the labour market, ensuring broader protection against algorithmic risks is indeed a key regulatory challenge ahead.[53] At the same time, it should be acknowledged that the sectoral focus of the Platform Work Directive allowed it to 'shift away from 'risk' in the abstract',[54] and identify it in a possibly most concrete manner, which would not be possible with a more general, omnibus kind of legislative intervention.

Despite all the merits of the Platform Work Directive, the analysis presented in this paper has discussed a range of limitations of its algorithmic management provisions. In particular, it identified several exceptions in the (otherwise broad) personal and material scope of the provisions set out in Chapter III of the Directive, which are often overlooked in the discussion in literature. The three most critical ones concern the exclusion of business users under the Platform-to-Business (P2B) Regulation from the provisions on human review under Article 11 PWD, the limitation of the protection against OSH-related risks caused by algorithmic management under Article 12 to platform workers with employment status, and the exclusion of persons undergoing the recruitment and selection procedure from the human oversight provisions under Article 10.

Another key criticism formulated in the present contribution concerns the fragmentation of rights with regard to various categories of automated decision-making and automated monitoring systems. For instance, the impact assessment under Article 10 (3) PWD does not concern the risk of discrimination resulting from decisions taken by

[53] POTOCKA-SIONEK, Nastazja, ALOISI, Antonio. The 'spillover effect' of algorithmic management and how (not) to tame it. In Vandaele K. and Rainone S. (eds), *The Elgar companion to regulating platform work. Insights from the food delivery sector. Cheltenham*, Edward Elgar, 2024, forthcoming. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4738680.

[54] KELLY-LYTH, Aislinn and THOMAS, Anna. Algorithmic management: Assessing the impacts of AI at work. *European Labour Law Journal*, *14*(2), 2023, p. 251.

those systems. Another example is the limitation of transparency rights under Article 9 (1) (c) (iv) PWD to grounds on which automated systems refused to pay but would not cover a decision involving a change of the payment rate.

Besides the fragmentation of rights under the Directive, the paper drew attention to the lack of strong competencies of national authorities to intervene in the case of the algorithmically-driven infringement of workers' rights. Platforms are obliged to prevent the occurrence of such violations in the future and to compensate for the algorithmic harm, but they are entirely free to choose how they will achieve it. National authorities have merely information rights as regards the outcome of human oversight and review processes.

The effectiveness of the Directive's algorithmic management provisions will ultimately depend on the enforcement of this instrument by the Member States and its judicial interpretation. To date, only a few EU countries have introduced regulations on algorithmic management at work, including in platform work.[55] In most cases, these interventions represent a piecemeal approach, addressing only a fraction of algorithmic risks or merely reiterating existing protections under non-discrimination and data protection law.[56] In Spain, for instance, Article 64(4)(d) of the Workers' Statute provides important, collective safeguards against algorithmic risks by ensuring that works councils have the right to information about the parameters, rules, and instructions upon which algorithms are based, as long as they are used for decision-making practices that may affect working conditions, access to employment or maintenance of employment, including profiling.[57] The provision largely mirrors Article 9 of the Platform Work Directive. Still, it does not amount to an obligation to negotiate the algorithm with the workers' representation, and neither does it provide redress mechanisms. Therefore, further legislative intervention is needed. The reform of the Croatian labour law, effective as of January 2024, stands out as a good example of a regulation which, albeit platform-specific, provides for a comprehensive set of safeguards against algorithmic management risks, in some aspects surpassing the protection provided for under the Platform Work Directive.[58]

[55] For an overview, see LITARDI Chiara, ADĂSCĂLIȚEI Dragoș, and WIDERA Sarah. Anticipating and managing the impact of change. Regulatory responses to algorithmic management in the EU. 21 May 2024. Available at https://www.eurofound.europa.eu/en/resources/article/2024/regulatory-responses-algorithmic-management-eu.

[56] POTOCKA-SIONEK, Nastazja, ALOISI, Antonio. The 'spillover effect' of algorithmic management and how (not) to tame it. In Vandaele K. and Rainone S. (eds), *The Elgar companion to regulating platform work. Insights from the food delivery sector. Cheltenham*, Edward Elgar, 2024, forthcoming.

[57] TODOLÍ-SIGNES, Adrian. Spanish riders law and the right to be informed about the algorithm. European Labour Law Journal, 12(3), 2021, 399-402.

[58] The unofficial consolidated text of the Labour Act is available at https://uznr.mrms.hr/wp-content/uploads/labour-act.pdf. An important addition to the obligations stemming from the Platform Work Directive is the obligatory appointment of an authorised person to supervise platform workers' safety and workload, as well as to carry out a review of automated decisions made in the automated management system and decide on them at the request of the worker. Moreover, after reviewing the decision, platform worker should be authorised to an expert statement of the decision and to decide upon the review of the decision.

4. Bibliography

ABRAHA, Halefom. Regulating algorithmic employment decisions through data protection law. *European Labour Law Journal*, *14*(2), 2023.ADAMS-PRASSL, Jeremias. The Challenges of Management by Algorithm: Exploring Individual and Collective Aspects. Gyulavári, Tamás , and Emanuele Menegatti, ed. Decent Work in the Digital Age: European and Comparative Perspectives. Oxford: Hart Publishing, 2022. Bloomsbury Collections.BAIOCCO Sara, FERNANDEZ-MACÍAS Enrique, RANI Uma, PESOLE Annarosa.

– The Algorithmic Management of work and its implications in different contexts. *Background Paper Series of the Joint EU-ILO Project "Building Partnerships on the Future of Work"*. Geneva, 2022.

BÉRASTÉGUI, Pierre. *Exposure to psychosocial risk factors in the gig economy: a systematic review*, Brussels, ETUI, 2021. Available at bit.ly/4049gJ9.

CEFALIELLO, Aude. An Occupational Health and Safety Perspective on EU Initiatives to Regulate Platform Work: Patching up Gaps or Structural Game Changers? *Journal of work health and safety regulation.* 2023 (1); 117−137.

DUBAL, Veena. On algorithmic wage discrimination. *Columbia Law Review*, 123(7), 2023, 1929-1992.

DUGGAN, James, SHERMAN Ultan, CARBERY Ronan, and MCDONNELL, Anthony.

– Algorithmic management and app-work in the gig economy: A research agenda for employment relations and HRM. Human Resource Management Journal, 30(1), 114-132.

European Agency for Safety and Health at Work. *Digital platform work and occupational safety and health: a review.* 2021. Available at https://osha.europa.eu/sites/default/files/2021-11/OSH_policies_online_platform_economy.pdf

FIERS, Floor. Inequality and discrimination in the online labor market: A scoping review. *New Media & Society*, *25*(12), 2023, 3714-3734

GUGLIELMETTI Mario. Automated work and workers' rights: platform work and AI work management systems. In Artificial intelligence, labour and society, Aída Ponce Del Castillo (ed.), European Trade Union Institute (ETUI), Brussels, 2024. Available at bit.ly/4e1z641

HIESSL, Christina. Case Law on Algorithmic Management at the Workplace: Cross-European Comparative Analysis and Tentative Conclusions. 2023. Available at https://ssrn.com/abstract=3982735

HIESSL, Christina. Algorithmic Management in the Workplace: Taking Stock of Case Law and Litigation in Europe. Hungarian Labour Law e-Journal. 2022/2. Available at https://hllj.hu/letolt/2022_2_a/01_ChHiessl_hllj_uj_2022_2.pdf.

KELLY-LYTH, Aislinn and THOMAS, Anna. Algorithmic management: Assessing the impacts of AI at work. *Eusropean Labour Law Journal*, *14*(2), 2023, 230-252.

LEE, Min Kyung, KUSBIT, Daniel, METSKY, Evan, and DABBISH, Laura. Working with machines: The impact of algorithmic, data-driven management on human workers. Proceedings of the 33rd Annual ACM SIGCHI Conference, Seoul, South Korea, 2015. LITARDI Chiara, ADĂSCĂLIȚEI Dragoș, and WIDERA Sarah. Anticipating and managing the impact of change. Regulatory responses to algorithmic management in the EU. 21 May 2024. Available at https://www.eurofound.europa.eu/en/resources/article/2024/regulatory-responses-algorithmic-management-eu. LYKKE NIELSEN Mette, SLOTH LAURSEN Cæcilie, and DYREBORG Johnny. Who takes care of safety and health among young workers? Responsibilization of OSH in the platform economy. Safety Science Volume 149, 2022, 105674.

MARTINDALE, Nicholas, WOOD, Alex J., and BURCHELL, Brendan. What do platform workers in the UK gig economy want? *British Journal of Industrial Relations* 62(3), 2024, 542-567.

MATEESCU, Alexandra and NGUYEN, Aiha. Explainer: Algorithmic management in the workplace. 2019. Available at https://datasociety.net/wpcontent/uploads/2019/02/DS_Algorithmic _Management_E xplainer.pdf

OGUNDE, Fife. Algorithmic management of platform workers: An examination of the Canadian and European approaches to regulation. *European Labour Law Journal*, 0(0), 2024. Available at https://journals-sagepub-com.eui.idm.oclc.org/doi/epub/10.1177/20319525241239632 PONCE DEL CASTILLO, Aída and NARANJO, Diego. *Regulating algorithmic management.* An assessment of the EC's draft Directive on improving working conditions in platform work. ETUI Policy Brief 2022.08. Available at https://bit.ly/4f5y9sj

PONCE DEL CASTILLO, Aída. Regulating algorithmic management in the Platform Work Directive: correcting risky deviations. Global Workplace Law & Policy. Available at bit.ly/3Y63EeF

POTOCKA-SIONEK, Nastazja and ALOISI, Antonio. The 'spillover effect' of algorithmic management and how (not) to tame it. In Vandaele K. and Rainone S. (eds), *The Elgar companion to regulating platform work. Insights from the food delivery sector. Cheltenham*, Edward Elgar, 2024, forthcoming. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4738680.

RAINONE, Silvia and ALOISI, Antonio. The EU Platform Work Directive What's new, what's missing, what's next? ETUI Policy Brief, 2024.06, August. Available at bit. ly/4eIMYRA

RENAN BARZILAY, Arianne. The Technologies of Discrimination: How Platforms Cultivate Gender Inequality. *The Law & Ethics of Human Rights*, vol. 13, no. 2, 2019, pp. 179-202.

SULLIVAN Rick, VEEN Alex, and RIEMER Kai. Furthering engaged algorithmic management research: Surfacing foundational positions through a hermeneutic literature analysis. Information and Organization Volume 34, Issue 4, December 2024, 100528.

TODOLÍ-SIGNES, Adrián. Spanish riders law and the right to be informed about the algorithm. European Labour Law Journal, 12(3), 2021, 399-402.

VEALE, Michael, SILBERMAN, Michael 'Six', and BINNS, Reuben. Fortifying the algorithmic management provisions in the proposed Platform Work Directive. *European Labour Law Journal*, 14(2), 2023.

WOOD, Alex J. Algorithmic management consequences for work organisation and working conditions, JRC Working Papers Series on Labour, Education and Technology 2021/07, 2021, European Commission.