

ALGORITHMIC BOSSES CAN'T LIE!
HOW TO FOSTER TRANSPARENCY AND LIMIT ABUSES OF THE
NEW ALGORITHMIC MANAGERS

Giovanni Gaudio

Technology is changing the way entrepreneurs manage their human resources. Many employers have already started to dismiss the completely human exercise of their managerial prerogatives, totally or partially delegating them to more or less smart machines. Data collected through people or workforce analytics practices are the fuel to fill the tank of algorithmic management tools, which are capable of taking automated decisions affecting the workforce. Notwithstanding the advantages in terms of increased labour productivity, recurring to technology is not always risk-free. It has already happened, also in the HR management context, that algorithms have revealed themselves as biased decision-makers. This problem has often been exacerbated by the lack of transparency characterising most part of automated decision-making processes. Moreover, this issue is worse in the employment context because it increases the already existent information asymmetries between entrepreneurs and workers. These are the main reasons why it has been underlined how workforce analytics and algorithmic management practices may implicate an augmentation of managerial prerogatives unheard in the past. It has also been stressed that this should entail an update – or even a rethinking – of employment laws that, as they are today, may be inadequate to address the issues posed by the technological revolution.

This paper tries thus to understand, mainly looking at the Italian and other EU civil-law based legal systems, whether there are rules that may foster transparency and prevent abuses of employers' managerial prerogatives potentially arising from the increasing recourse to algorithmic management practices. More specifically, this article points to three types of regulatory techniques that may alleviate the abovementioned issues. These three regulatory techniques are: a) information and access rights, to be exercised before a claim has been brought with a view to gather evidence to be used within a trial; b) rules that, within a trial, totally or partially switch the burden of proof to the employer; and c) rules that, within a trial, grant employment judges with broad powers to gather evidence.

All these regulatory techniques strongly incentivise employers to recur to only those algorithmic tools with a decision-making process that can potentially be made transparent to their employees and, in case of a trial, to employment judges. Therefore, the employment legal system already knows how to foster transparency in the workplace and consequently uncover the violation of rules that already limit abuses of managerial prerogatives by employers. In light of the pervasive use of new technological tools to manage human resources, a more massive recourse to these regulatory antibodies can constitute an effective policy recommendation to better face the challenges posed by the algorithmic revolution.

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I. EXERCISING MANAGERIAL PREROGATIVES THROUGH ALGORITHMIC
MANAGEMENT DEVICES, BETWEEN INFORMATION ASYMMETRIES AND RISKS OF
ABUSES FROM THE NEW ALGORITHMIC BOSSES

Technology is changing the way entrepreneurs manage their human resources. Decisions that used to be made by humans are, always more often, partially or totally delegated to algorithms.¹ This phenomenon, which has been labelled ‘data-driven’ or ‘algorithmic management’,² consists in automating managerial functions traditionally performed by human managers in order to optimise business processes.³ In other words, it consists of ‘a diverse set of technological tools and techniques to remotely manage workforces, relying on data collection and surveillance of workers to enable automated or semi-automated decision-making’.⁴

Algorithmic management practices have been tracked down and researched in greatest details with reference to platform work, which is the sector where algorithms have been widely used to direct, monitor, and discipline workers.⁵ However, research and news reports show how these tools have been used, even if to a lesser degree, in other sectors.⁶ From logistics to services, many employers have already started to dismiss the completely human exercise of their managerial prerogatives. Data collected through people or workforce analytics practices⁷ are

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¹ The technical terms used in this article have the meaning indicated in the glossary for lawyers prepared by the Research Group on the Regulation of the Digital Economy, *Technical Aspects of Artificial Intelligence: An Understanding from an Intellectual Property Law Perspective* (Max Planck Institute for Innovation and Competition Research Paper, 2019), where the term ‘algorithm’ is defined as a ‘step-by-step instruction’ that, in the machine learning context, consists in ‘an instruction coded as software and directed at a computer’.

² According to Sarah O’Connor, *When your boss is an algorithm*, FINANCIAL TIMES (September 8, 2017), <https://www.ft.com/content/88fdc58e-754f-11e6-b60a-de4532d5ea35>, this expression has been coined by Min Kyung Lee et al., *Working with Machines: The Impact of Algorithmic and Data-Driven Management on Human Workers*, Proceedings of CHI (2015).

³ For recent literature reviews of the topic from a management perspective, see Katherine C. Kellogg et al., *Algorithms at work: the new contested terrain of control*, 14 ACAD. OF MGMT. ANNALS 366 (2020) and Alex J. Wood, *Algorithmic management consequences for work organisation and working conditions* (JRC Working Papers Series on Labour, Education and Technology, WP No. 7, 2021).

⁴ Alexandra Mateescu & Aiha Nguyen, *Algorithmic Management in the Workplace*, DATA & SOCIETY 1 (2019) https://datasociety.net/wp-content/uploads/2019/02/DS_Algorithmic_Management_Explainer.pdf.

⁵ *Id.* at 3; Jeremias Adams-Prassl, *What if your boss was an algorithm? Economic incentives, legal challenges, and the rise of artificial intelligence at work*, 41 COMP. LAB. L. & POL’Y J. 123, 131-132 (2019); and Wood, *supra* note 3, at 11. This is also confirmed by the fact that management studies have used the gig-economy as a case-study of this trend: see, for example, James Duggan et al., *Algorithmic management and app-work in the gig economy: A research agenda for employment relations and HRM*, 30 HUM. RESOUR. MANAG. J. 114 (2020) and Mohammad H. Jarrahi & Will Sutherland, *Algorithmic Management and Algorithmic Competencies: Understanding and Appropriating Algorithms in Gig Work*, iConference 2019, 578 (2019).

⁶ For practical examples, Mateescu & Nguyen, *supra* note 4, at 5-12; Kellogg et al., *supra* note 3, at 372-382; Wood, *supra* note 3, at 2-9. Among news report, see Josh Dzieza, *How hard will the robots make us work?*, THE VERGE (February 27, 2020), <https://www.theverge.com/2020/2/27/21155254/automation-robots-unemployment-jobs-vs-human-google-amazon>.

⁷ Miriam A. Cherry, *People Analytics and Invisible Labor*, 61 SAINT LOUIS UNIVERSITY SCHOOL OF LAW 1 (2016) and Emanuele Dagnino, *People Analytics: lavoro e tutele al tempo del management tramite big data*, 3 LAB. & L. ISSUES 1 (2017).

the fuel to fill the tank of algorithmic management tools,⁸ which are capable of making automated or semi-automated decisions affecting the workforce.⁹ In the wake of the progress made in the field of Artificial Intelligence (AI),¹⁰ companies are thus increasingly recurring to these tools to perform several HR management functions, such as recruiting candidates, allocating tasks, scheduling work-shifts, and managing the performance of their workforce.¹¹ Technology is not only used to monitor workers more closely, but also to give them instructions and, mostly in the delivery and logistics industries, even to discipline those employees who do not obey the orders of their new algorithmic bosses.¹² This is not a dystopian picture of what the future of work will look like. Rather, this is already the reality characterising many modern workplaces.

Notwithstanding the advantages in terms of increased labour productivity, recurring to algorithmic management tools is often justified by the idea, popular also among employees, that algorithmic decision-makers, especially when equipped with AI tools, are more accurate, impartial, and objective than human ones.¹³ Although the level of accuracy of these tools is increasingly higher, recurring to technology is not always risk-free. On the one hand, algorithms can help reducing human biases or their subjective interpretation of data.¹⁴ On the other, it has already happened that algorithms have revealed themselves to be prone to making biased decisions. First, the data used to program the algorithm may embed human and societal biases. Second, a human input is always needed when building the architecture of an automated decision-making model. Therefore, even in those cases where there are no issues with the data used as input of the model, the decision may be in any event flawed because of the algorithmic programmer's biases.¹⁵ In both cases, algorithmic decision makers, more than human ones, can deploy these biases at scale. These risks have already materialised in the HR management context, where algorithms have made biased decisions, even discriminating workers, because the data or the model used to build the algorithm were intrinsically flawed.¹⁶

This problem has often been exacerbated by the lack of transparency characterising most part of automated decision-making processes. It is well-known, among those who have studied this phenomenon, that algorithms can be

⁸ People or workforce analytics practises are complementary and preparatory to algorithmic managements ones, as the former are dedicated to acquisition and analysis of data, while the latter focus on the application of knowledge based on data previously collected and analysed, *see* ANTONIO ALOISI & VALERIO DE STEFANO, *IL TUO CAPO È UN ALGORITMO* 78-79 (2020).

⁹ However, it seems that high or full automation has been implemented in 'driving and delivery platform work by firms such Uber, UberEATS; Deliveroo and Foodora, as well as logistic firms, such as Amazon', while in other sectors the role of human managers is greater than the one assigned to algorithmic systems, Wood, *supra* note 3, at 11-13.

¹⁰ AI is intended here as a 'catch-all term that describes a branch of computer science dealing with the development of systems that behave in a way similar to human intelligence', as defined by Research Group on the Regulation of the Digital Economy, *supra* note 1.

¹¹ Valerio De Stefano, *'Negotiating the Algorithm': Automation, Artificial Intelligence and Labour Protection*, 41 *COMP. LAB. L. & POL'Y J.* 15, 23-31 (2019) and Adams-Prassl, *supra* note 5, at 131-137.

¹² Kellogg et al., *supra* note 3, at 372-382 and Wood, *supra* note 3, at 2-9.

¹³ Kellogg et al., *supra* note 3, at 368-369.

¹⁴ Jake Silberg & James Manyika, *Tackling bias in artificial intelligence (and in humans)*, MCKINSEY GLOBAL INSTITUTE (June 6, 2019), <https://www.mckinsey.com/featured-insights/artificial-intelligence/tackling-bias-in-artificial-intelligence-and-in-humans>.

¹⁵ Philipp Hacker, *Teaching fairness to artificial intelligence: existing and novel strategies against algorithmic discrimination under EU law*, 55 *COMMON MARK. LAW REV.* 1143 (2018); Miriam Kullmann, *Discriminating job applicants through algorithmic decision-making*, SSRN (2019); RAPHAËLE XENIDIS & LINDA SENDEN, *EU non-discrimination law in the era of artificial intelligence: Mapping the challenges of algorithmic discrimination*, in *GENERAL PRINCIPLES OF EU LAW AND THE EU DIGITAL ORDER* 151 (Ulf Bernitz et al. eds., 2020).

¹⁶ Marta Otto, *Workforce Analytics v Fundamental Rights Protection in the EU in the Age of Big Data*, 40 *COMP. LAB. L. & POL'Y J.* 389, 393 (2019) and De Stefano, *supra* note 11, at 27-29.

described as black boxes, characterised by different types and degrees of opacity.¹⁷ This means that the recipients of a decision made by an algorithm may not have any idea of how and why the model has reached a certain conclusion using the processed data. In addition, black boxes' degree of opacity may be even higher because, in most cases, no one knows which data have been used as input of the algorithmic decision-making process, except for their original programmers or those working with these devices.¹⁸

In terms of algorithmic opacity, it is possible to distinguish three main obstacles.¹⁹ The first one is legal²⁰ and refers to the fact that automated decision-making tools are often protected by corporate secrecy, because algorithms are often covered by trade secrets²¹ as well as by statutory or contractual confidentiality duties of the employees that develop and program these devices.²² The second obstacle is a technical one and can be defined as coding illiteracy.²³ Not only code writing but also code reading is a specialized skill that is not widely spread among the general public. The third obstacle is also a technical one and is distinctive of machine learning algorithms (ML),²⁴ which are the ones that dynamically learn from training data and then apply that knowledge to new data.²⁵ When compared to static rule-based algorithms, ML are often so complex that they are unexplainable or incomprehensible to human understanding.²⁶ Therefore, 'even though experts can in general explain how a model functions, they cannot explain precisely why it generated a concrete output based on a given input'.²⁷ In addition, the cost of these reverse engineering practices, when technically feasible, increases depending on the complexity of the model. As a result, in certain cases and only if technically viable, it may be easier to design an alternative model to produce a comparable outcome²⁸ or to recur to counterfactual explanations that do not require opening the black box.²⁹

Due to these forms of opacity, workers are mostly unaware of the decision-making processes of the algorithms that manage the performance of their employment. While people or workforce analytics practices make workers transparent to their managers, the reasons behind the decisions taken by algorithmic management tools are inscrutable for workers,³⁰ because algorithms are legally inaccessible or technically indecipherable. The resulting scenario is that employees are managed by opaque algorithms, thus increasing the information

¹⁷ FRANK PASQUALE, *THE BLACK BOX SOCIETY. THE SECRET ALGORITHMS THAT CONTROL MONEY AND INFORMATION* (2015).

¹⁸ Jenna Burrell, *How the machine 'thinks': Understanding opacity in machine learning algorithms*, *BIG DATA & SOC.* 1 (2016). For a brief explanation of this issue and an updated literature review, see Janneke Gerards & Raphaële Xenidis, *Algorithmic discrimination in Europe: Challenges and opportunities for gender equality and non-discrimination law* 45-46 (EU Commission, 2020).

¹⁹ Burrell, *supra* note 18, at 3 ff.

²⁰ *Id.* at 3-4.

²¹ ALEKSANDRA DROŹDŹ, *PROTECTION OF NATURAL PERSONS WITH REGARD TO AUTOMATED INDIVIDUAL DECISION-MAKING IN THE GDPR* 86-92 (2020).

²² Pasquale, *supra* note 17, at 6.

²³ Burrell, *supra* note 18, at 3-4.

²⁴ *Id.* at 4-5.

²⁵ As defined by Research Group on the Regulation of the Digital Economy, *supra* note 1. On the difference between rule-based and ML algorithms, see also Gerards & Xenidis, *supra* note 18, at 32-37.

²⁶ Roman V. Yampolskiy, *Unexplainability and Incomprehensibility of Artificial Intelligence*, 7 *J. ART. INTELL. AND CONSCIOUS.* 227 (2020).

²⁷ Research Group on the Regulation of the Digital Economy, *supra* note 1, at 11.

²⁸ Research Group on the Regulation of the Digital Economy, *supra* note 1, at 10.

²⁹ Sandra Wachter et al., *Counterfactual Explanations Without Opening the Black Box: Automated Decisions and the GDPR*, 31 *HARV. J. L. & TECH.* 841 (2018).

³⁰ Aloisi & De Stefano, *supra* note 8, at 70-71.

asymmetries in the already unbalanced relationship between the parties to an employment contract.³¹

However, it shall be stressed that not only employees, but also employers may suffer from lack of information regarding the algorithmic decision-making process. From a legal point of view, they may not have access to the codes of those algorithms used to manage their workforce, as they buy them on the market from software developers. From a technical one, employers, like employees, may not know the key to open the black box of too intelligent algorithms – also considering that a key may not even exist in case of ML algorithms. Therefore, there is another risk that has to be taken into account. Algorithms can be unexplainable or incomprehensible also to those same entrepreneurs that have decided to use them to manage their workforce. In other words, not only employees, but also employers, may be victim of the above transparency issues. If these devices are implemented without control and appropriate safeguards, employers may end up in making decisions regarding their workforce that, if they had full information on their possible consequences, would not have been made.

Nevertheless, unlike workers, they remain free to decide whether to recur to algorithmic management tools, and are therefore responsible for this choice, from both a managerial and legal point of view, towards their workforce. This is the reason why the existing literature on this topic has claimed that workforce analytics and algorithmic management practices ‘can lead to a “genetic variation” of managerial prerogatives, by “upgrading” them to levels unheard in the past’.³² The advent of AI technologies would allow employers to monitor their workforce more pervasively, thus giving them more opportunities to discipline them when they do not obey to the orders of their new algorithmic bosses. This would also allow them to manage their workforce pervasively, ‘whilst scrupulously avoiding the appearance of traditional employer control’.³³ For all these reasons, it has also been claimed that this should entail an update – or even a rethinking – of employment laws that, as they are today, may be inadequate to address the issues posed by the algorithmic revolution.³⁴

The aim of this paper is thus to understand whether there are rules that may foster transparency and avoid abuses of employers’ managerial prerogatives potentially arising from the increasing recourse to algorithmic management practices. In other words, this article will try to examine whether there are any existing regulatory techniques that may be helpful in alleviating the issues of lack of transparency and augmentation of managerial prerogatives. In order to perform this task, I will analyse three different case-studies of algorithmic management devices developed and deployed by Amazon in the US, to understand whether the implementation of these specific tools in the EU may have been legally feasible from an employment and data protection laws perspective, analysing three discrete legal issues, which are often at stake in employment litigation: a) limits to employers’ monitoring and dismissal powers; b) non-discrimination; and c) classification of workers.

Section II begins by clarifying the comparative assumptions behind this analysis and its limitations, also giving a brief account of the EU procedural and substantial rules that would apply in dealing with the above-mentioned three discrete legal issues to be analysed. Section III continues by simulating how a court in an EU Member State would decide on the legitimacy of the

³¹ Otto, *supra* note 16, at 392-393. With specific regard to platform work, *see also* Alex Rosenblat & Luke Stark, *Algorithmic labor and Information Asymmetries: A Case Study of Uber’s Drivers* 10 INT’L J. OF COMM’N. 3758, 3758 ff. (2016) and Duggan et al., *supra* note 5, at 120.

³² De Stefano, *supra* note 11, at 36.

³³ Adams-Prassl, *supra* note 5, at 144-146.

³⁴ *Id.* at 124.

implementation of three discrete algorithmic devices used by Amazon in the US. Section IV summarizes the findings of the case-studies analysis carried out at Section III, showing that these techniques, which are pretty common in the EU legal systems and even beyond, may constitute effective regulatory responses to increase the transparency of algorithmic management devices and consequently limit the risk of abuses of managerial prerogatives deriving from their implementation. Section V concludes by highlighting how algorithmic transparency may be fostered even through legal techniques that, counterintuitively, do not uncover the truth hidden behind the algorithm.

II. SIMULATING EMPLOYMENT ALGORITHMIC LITIGATION IN THE EU: SOME PRELIMINARY COMPARATIVE ASSUMPTIONS

When running a simulation on how a certain case would be decided in the EU, it will be necessary to choose a specific legal system of an EU Member State, because when a certain domain is extensively regulated at the EU level, ‘the effective normative outcomes ... necessarily occur at the national level and are inevitably distinctive or specific to each Member State in their fine texture, even if they all conform to a general norm which has been formulated at the EU level’.³⁵ In addition, it is important to consider that, when simulating how a specific case will be decided, many substantial and, in particular, procedural aspects are regulated exclusively at a national level, without any intervention at the EU one. For the purpose of this analysis, I will choose the Italian legal system, which is part of the EU one, as the legal environment for the case-study simulations, because I am an Italian trained lawyer.

Notwithstanding the above, this analysis may be interesting for a broader audience for two reasons. First, it does not specifically intend to focus on the outcome of a specific case, but rather on the regulatory techniques used to decide such a case. Therefore, if these regulatory techniques prove to be effective in a certain legal system, they may be cautiously transplanted in other legal systems that wants to implement effective regulatory tools to better face the issues of algorithmic opacity and abuses of managerial prerogatives. Second, the hypothesis is that these regulatory techniques are already widely in place at least within civil-law EU legal systems, and they can thus be directly used in these other EU Member States. Civil-law EU legal systems seem to have many critical similarities when looking at their procedural and substantial laws to be applied when simulating how these three case-studies will be decided in Italy. It follows that seems to be possible to assume that these regulatory techniques already exist not only in Italy, but also in all civil-law EU legal systems, as it will be seen shortly.

The first assumption of this analysis has to be made in relation to procedural rules, in particular to the main norms that, in civil-law EU systems, are used to define the issues of a legal proceedings and to gather evidence,³⁶ which are the key rules that will be referred to in running our simulations. These rules have to be briefly introduced here, because their content will be essential in understanding who, between the parties of an employment proceedings, has the burden to describe and demonstrate how an algorithmic management device made a decision regarding an employee.

³⁵ MARK FREEDLAND & NICOLA KOUNTOURIS, *THE LEGAL CONSTRUCTION OF PERSONAL WORK RELATIONS* 418 (2011).

³⁶ OSCAR G. CHASE ET AL., *CIVIL LITIGATION IN COMPARATIVE CONTEXT* (2017), in general, at 9-10 and, more in details on German, French, and Italian civil-law systems, at 251-334.

In Italy, as well as in other civil-law EU countries,³⁷ civil litigants, including the ones of employment proceedings,³⁸ have to allege the facts on which they establish their action, and have to offer and specify the means of evidence on which they want to rely in support of the factual allegations they have made in their pleadings (the so-called ‘fact pleading’ system).³⁹ Therefore, this case-study analysis has an important limitation, as it may not be of immediate interest for observers from common-law countries, which, compared to civil-law ones, are instead characterised by an ‘all cards on the table’ approach, according to which each civil litigant, before the trial begins, can gather information and obtain evidence from the counterparty or even from third parties (the so-called ‘discovery’ system).⁴⁰

The absence of pre-trial discovery devices in civil-law countries may thus worsen the issue of algorithmic opacity for claimant workers, increasing the information asymmetries between them and their employers. In fact, if employees do not have information and evidence regarding the functioning of an algorithmic management device before a trial begins, they will have great difficulties to show in court how and why a certain managerial decision has been made through an algorithmic device, and, therefore, whether an employer has complied with substantial employment and data protection laws in delegating such a decision to an algorithmic management tool.

In light of these transparency issues, the rules regarding the burden of proof will play a fundamental role in the case-study analysis that will be carried out in Section III. These rules ‘make it possible for a trial to arrive at a decision for one side or another in a contested case, even though all the facts of the case may not be known, and, for various reasons, may never be known’⁴¹, as may happen when dealing with opaque algorithmic device. To put it simply, the burden of proof distributes between the parties the risk of losing the case.⁴² In EU civil-law systems like Italy, the burden of proof is generally on the claimant, while the respondent has the burden regarding exceptions.⁴³ However, this customary burden of proof may be shifted for various reasons, including when a party is at disadvantage in gathering evidence that, instead, can be more easily obtained by the counterparty because, for example, this is closer to the source of evidence.⁴⁴ Similar practical effects may be also produced through presumptions, *i.e.*, those legal mechanisms that deem one fact to be true within a trial, even in absence of direct evidence of that fact. Presumptions substantially relieve the party that has the burden of proof to fully prove certain facts that may be very difficult to demonstrate.⁴⁵ This happens quite often in the employment context, when, depending on the circumstances, the burden of proof can be entirely or partially shifted to the employer, irrespective of whether he is the claimant or the

³⁷ Chase et al., *supra* note 36, at 9.

³⁸ See the answers of employment civil-law judges to questions B.12 and ff. in ILO, *Evidence in Labour Court Proceedings* (XXVI Meeting Of European Labour Court Judges, September 25-26, 2018).

³⁹ SOFIE GEEROMS, *FOREIGN LAW IN CIVIL LITIGATION. A COMPARATIVE AND FUNCTIONAL ANALYSIS* (2004), at 27-28.

⁴⁰ For a very general analysis, see Geeroms, *supra* note 39, at 15-19 and, more in details on UK and US common-law systems, Chase et al., *supra* note 36, at 286-290 and 325-329 respectively.

⁴¹ DOUGLAS WALTON, *BURDEN OF PROOF, PRESUMPTION AND ARGUMENTATION* 1 and 49-54 (2014): ‘Burden of proof’ is an ambiguous expression: using Walton’s terminology, we are here specifically referring to the ‘global burden of proof before the trial begins, which is called the burden of persuasion’, whose two main characteristics are ‘that is fixed and does not change during the whole trial’ and ‘that once met, it determines who wins the trial’.

⁴² Robert S. Summers, *Formal Legal Truth and Substantive Legal Truth in Judicial Fact-Finding – Their Justified Divergence in Some Particular Cases*, 18 L. & PHIL. 497, 506 (1999).

⁴³ This is a general rule expressed in the Latin maxim ‘onus probandi incumbit ei qui dicit’, which seems applicable to civil cases in both civil and common-law systems: Walton, *supra* note 41, at 52 and 68-69.

⁴⁴ MICHELE TARUFFO, *LA SEMPLICE VERITÀ. IL GIUDICE E LA COSTRUZIONE DEI FATTI* 230 (2009).

⁴⁵ Walton, *supra* note 41, at 1 and 276-277 (2014).

respondent, or certain facts can be presumed when the employee may have difficulties in discovering and offering evidence to prove them.⁴⁶

Traditionally, EU civil-law systems are all characterised by the principle ‘*nemo tenetur edere contra se*’, i.e., no party has to help his opponent in his enquiry of the facts and in his search of the evidence that may be necessary to decide a specific case.⁴⁷ Nevertheless, there have always been certain, albeit traditionally very limited, exceptions to this general principle. All continental civil-law systems empower judges to issue *ex officio* certain measures to gather evidence that may be useful to find out whether the facts, as alleged by the parties, are true: e.g., order the production of certain documents, order a person to give a witness testimony, order an expert to inspect scenes or other things, and provide an expert declaration on his findings.⁴⁸ More recently, also to balance the absence of pre-trial discovery devices, reforms have been introduced in many civil-law countries aimed at broadening these judges’ power to gather evidence from either the opponent or third parties, allowing each party to have access to evidence not in his possession, because this would be instrumental to get as close as possible to the ‘substantive truth’⁴⁹ of the case.⁵⁰ This has been the case, for example, in Italian employment proceedings, where, since the ‘70s, judges have been empowered with broad power to gather evidence,⁵¹ on the assumption that this may be necessary to unveil the substantive truth of the case, a purpose that may be prejudiced by the information asymmetries between the parties to an employment relationship, which may put the employee at disadvantage in gathering evidence that are often in the exclusive possession of the employer.⁵² As a result, the traditional principle that no party has to help his opponent has been, to some extent, watered down, at least in those cases where judges have been granted with *ex officio* powers to gather evidence, because this can assist the party who, despite having the burden of proving a fact, fails to collect the evidence at his own initiative before the trial begins.

The second assumption of this comparative overview is that not only procedural, but also substantial laws may be similar among EU civil-law countries, at least those that will be referred to in analysing the legal issues in our case-study analysis and that, for this reason, need to be introduced in this Section. This hypothesis is based on the following two factors.

First, certain domains, such as data protection and non-discrimination laws, are extensively regulated at the EU level, and are thus uniform or at least heavily harmonized throughout the EU. Therefore, the analysis of these two domains when simulating a litigation in Italy can be of direct interest also for an audience from all the other EU Member States, because the very same legal techniques are available not only in Italy but also in the whole EU.

⁴⁶ See the answers of employment civil-law judges to questions B.25 in ILO, *supra* note 38.

⁴⁷ Nicolò Trocker & Vincenzo Varano, *Concluding Remarks*, in THE REFORMS OF CIVIL PROCEDURE IN COMPARATIVE PERSPECTIVE 255 (Nicolò Trocker & Vincenzo Varano eds., 2005). For the Italian legal system, see SIMONA GROSSI & MARIA CRISTINA PAGNI, COMMENTARY ON THE ITALIAN CODE OF CIVIL PROCEDURE (2010) at 9-10 in general, but there are certain specificities in employment proceedings, as underlined at 327-332.

⁴⁸ Geeroms, *supra* note 39, at 28-31.

⁴⁹ According to Summers, the ‘substantive truth’ is defined as the ‘actual truth’, while the ‘formal legal truth’ is defined as ‘whatever is found as fact by the legal fact-finder ... whether it accords with substantive truth or not’, specifying that ‘formal legal truth may, in a particular case, fail to coincide with substantive truth’, Summers, *supra* note 42, at 498-499.

⁵⁰ Chase et al., *supra* note 36, at 9-10 and Trocker & Varano, *supra* note 47, at 255-258.

⁵¹ Grossi & Pagni, *supra* note 47, at 333 (2010). See also ILO, *supra* note 38, at 106.

⁵² EDOARDO ALES, *The Concept of ‘Employee’: The Position in Italy*, in RESTATEMENT OF LABOUR LAW IN EUROPE. VOLUME I. THE CONCEPT OF EMPLOYEE 351, 370 (Bernd Waas & Guus Heerma van Voss eds., 2017) explains that, ‘by exercising these powers *ex officio*, the role of the judge in labour disputes is more prominent than in ordinary civil proceedings, which may give an advantage to the employee’.

The European Union's General Data Protection Regulation (GDPR)⁵³ provides a uniform regulatory framework for the protection of personal data which is directly applicable in all EU Member States.⁵⁴ The GDPR is obviously applicable when employees' data are collected and processed, also in the more specific case of automated decision-making through algorithmic management devices.⁵⁵ According to Articles 5(2) and 24(1) GDPR, the employer, as a data controller, must be then able to demonstrate that it complied with a series of substantial and organizational requirements when processing employees' data.⁵⁶ First, it has to prove that the data processing activity has respected all the principles laid down under Article 5(1) GDPR, which are lawfulness, fairness and transparency; purpose limitation; data minimisation; accuracy; storage limitation; integrity and confidentiality.⁵⁷ Second, an employer has to demonstrate that: at the time data are collected, has provided employees with a series of information regarding the processing of their data, including information about existence and purpose of processing (Article 13 GDPR);⁵⁸ has carried out a data protection impact assessment if, in particular when using new technologies, the processing operations is likely to result in high risks to rights of workers, such as non-discrimination rights (Article 35 GDPR);⁵⁹ and, if it employs more than 250 persons, has maintained a record of processing activities (Article 30 GDPR).⁶⁰ This last organizational requirement is critical above all to give effectiveness to the right to access, *i.e.*, the employees' right to obtain confirmation from their employer that their personal data are being collected and, if this is the case, to be provided with a series of information regarding the processing of their data (Article 15 GDPR).⁶¹ Lastly, the GDPR prohibits those decisions that are solely based on automated processing because there was no human involvement in the decision-making process (Article 22 GDPR).⁶² However, there are exceptions to this general prohibition. For example, automated decision-making is admitted if it is necessary for entering or performing a contract, as it may happen in relation to a contract of employment (Article 22(2)(a) GDPR). Nevertheless, even when falling within this exception, an employer shall 'implement suitable measures to safeguard the data subject's rights and freedoms and legitimate interests, at least the right to obtain human intervention on the part of the controller, to express his

⁵³ Regulation (EU) 2016/679.

⁵⁴ In general, see CHRISTOPHER KUNER ET AL., *Background and Evolution of the EU General Data Protection Regulation (GDPR)*, in THE EU GENERAL DATA PROTECTION REGULATION (GDPR): A COMMENTARY 1 (Christopher Kuner et al. eds., 2020).

⁵⁵ Frank Hendrickx, *From Digits to Robots: The Privacy Autonomy Nexus in New Labor Law Machinery*, 40 COMP. LAB. L. & POL'Y J. 365, 383-385 (2019).

⁵⁶ In general, see CÉCILE DE TERWANGNE, *Comment to Article 5*, in THE EU GENERAL DATA PROTECTION REGULATION (GDPR): A COMMENTARY 309, 318-319 (Christopher Kuner et al. eds., 2020) and CHRISTOPHER DOCKSEY, *Comment to Article 24*, in THE EU GENERAL DATA PROTECTION REGULATION (GDPR): A COMMENTARY 555 (Christopher Kuner et al. eds., 2020).

⁵⁷ In general, see de Terwangne, *supra* note 56.

⁵⁸ In general, see GABRIELA ZANFIR-FORTUNA, *Comment to Article 13*, in THE EU GENERAL DATA PROTECTION REGULATION (GDPR): A COMMENTARY 413 (Christopher Kuner et al. eds., 2020)

⁵⁹ In general, see ELENI KOSTA, *Comment to Article 35*, in THE EU GENERAL DATA PROTECTION REGULATION (GDPR): A COMMENTARY 665 (Christopher Kuner et al. eds., 2020) and, for an employment law perspective regarding algorithmic devices, Aislinn Kelly-Lyth, *Challenging Biased Hiring Algorithms*, 00 OX. J. L. STUD. 1, 16-18 (2021).

⁶⁰ WALTRAUT KOTSCHY, *Comment to Article 30*, in THE EU GENERAL DATA PROTECTION REGULATION (GDPR): A COMMENTARY 616 (Christopher Kuner et al. eds., 2020).

⁶¹ GABRIELA ZANFIR-FORTUNA, *Comment to Article 15*, in THE EU GENERAL DATA PROTECTION REGULATION (GDPR): A COMMENTARY 449 (Christopher Kuner et al. eds., 2020).

⁶² The issue of automated individual decision-making under the GDPR has been widely debated among scholars and cannot be directly analysed here: see, in general, Drożdż, *supra* note 21, at 86-92 and, for an employment law perspective on these topics, De Stefano, *supra* note 11, at 38-39; Antonio Aloisi & Elena Gramano, *Artificial Intelligence is Watching You at Work: Digital Surveillance, Employee Monitoring, and Regulatory Issues in the EU Context*, 41 COMP. LAB. L. & POL'Y J. 95, 105-108 (2019); Adams-Prassl, *supra* note 5, at 143; Frank Hendrickx, *supra* note 55, at 383-385 (2019); Otto, *supra* note 16, at 398-401.

or her point of view and to contest the decision' (Article 22(3) GDPR), and shall provide the employee both *ex ante* and, upon specific request, also *ex post* confirmation of the 'existence of automated decision-making' and, if this existed, 'meaningful information about the logic involved' in the decision-making process, also explaining the 'envisaged consequences of such processing' for the employee (Articles 13 and 15 GDPR).⁶³ These provisions will be referred in simulating all the three case-studies to be examined in Section II, which involve the use of algorithmic management devices fed by employees' data.

Non-discrimination laws are also heavily harmonized among EU Member States.⁶⁴ Through the enactment of many Directives, the EU has prohibited discriminations based on a series of protected characteristics, such as gender,⁶⁵ race and ethnic origin,⁶⁶ religion or belief, disability, age, or sexual orientation.⁶⁷ EU Directives prohibits two forms of discrimination: direct and indirect. Direct discrimination occurs when a certain person is treated less favourably than another because of one of the above protected characteristics. Indirect discrimination instead occurs when an apparently neutral provision, criterion or practice would put a person of one protected group at particular disadvantage, unless this can be objectively justified.⁶⁸ These EU non-discrimination laws will be applied when simulating the second case-study, that will examine a case of algorithmic discrimination at work.

Second, other legal domains, although not specifically regulated at the EU level, are in any case similar throughout the EU. Therefore, their analysis can be also of interest for an audience from all the other EU Member States, because, despite variations among EU discrete legal systems, the regulatory techniques listed below have been experimented not only in Italy, but also elsewhere in the EU.

Most EU Member States, including Italy, limit employers' monitoring powers not only from a data protection perspective, but also from a purely employment one by, for example, restricting the implementation of certain monitoring devices that may be harmful to human dignity and involving trade unions in the process of installing them in the workplace.⁶⁹ Similarly, all EU Member States provide employees with certain protection against unfair dismissals.⁷⁰ There shall be valid subjective or objective reasons to unilaterally terminate a contract of employment.⁷¹ Otherwise, the dismissed employee will benefit from the application of specific remedies, generally in the form of reinstatement and/or compensation.⁷² These provisions limiting monitoring and dismissal powers, that are similar throughout the EU, will be specifically referred when analysing the first case-study, regarding an algorithmic device implemented to track and fire employees for productivity.

In addition, all EU Member States guarantee all employment rights only to those individuals which are party to an employment relationship, whose existence is determined by applying tests and criteria that, on a very general basis, can be considered similar to each other and are mainly related to the fact that one party

⁶³ Kelly-Lyth, *supra* note 59, at 18-19.

⁶⁴ PAUL CRAIG & GRÁINNE DE BÚRCA, *EU LAW. TEXT, CASES, AND MATERIALS* 929-994 (2020).

⁶⁵ Directive 2006/54/EC.

⁶⁶ Directive 2000/43/EC.

⁶⁷ Directive 2000/78/EC.

⁶⁸ Craig & de Búrca, *supra* note 64, at 967-971.

⁶⁹ See the analysis regarding France, Germany and Italy carried out by Aloisi & Gramano, *supra* note 62, at 108-119.

⁷⁰ See the comparative analysis among EU and non-EU European countries carried out by Guus Heerma van Voss et al., *Dismissal - particularly for business reasons - and Employment Protection* (ELLN 2011).

⁷¹ *Id.* at 52 ff.

⁷² *Id.* at 87-95.

is exercising control over another, *i.e.*, an employer has the power to give binding instructions to an employee who, in case of non-compliance, may be subject to disciplinary measures.⁷³ These provisions will be referred when analysing the third case-study, regarding an invisible algorithm that guides and disciplines couriers.

For all these reasons, it is thus possible to confirm the hypothesis made at the beginning of this Section II, *i.e.*, the regulatory techniques that will be examined in running the three case-study simulations already exist not only in Italy, but also in all civil-law EU legal systems. In any case, in order to further validate this point, when in Section IV I summarizes the findings of the case-study analysis carried out under Italian law, I will also bring other examples of how these legal techniques have been experimented elsewhere in the EU and even beyond, referring to legislation or decisions taken within legal systems other than the Italian one.

III. LITIGATING THE ALGORITHM

As pointed out in Section I, algorithmic management devices are not always transparent. In addition, as further clarified in Section II, this opacity issue is exacerbated by the fact that, in absence of pre-trial discovery devices typical of common-law countries, a claimant worker in a civil-law EU country like Italy would generally need, at the outset of the case, to allege the facts of his action and offer the evidence on which he wants to rely on in support of his factual allegations. Taking all these points into account, it is now possible to simulate how a court in Italy would decide on the legitimacy, from both an employment and data protection law perspective, of the use of certain algorithmic management devices already implemented by Amazon in the US. In doing so, it will be necessary to start analysing each case-study bearing in mind who has the burden of proof in relation to the facts regarding the functioning of each of these devices.

A. *Bringing a claim based on the alleged violation of the limits to the managerial prerogative of remotely monitoring the workforce and dismissal power: the algorithm that tracks and fires employees for productivity*

Amazon has developed an automated system to measure productivity of its warehouse workforce. This system constantly tracks the productivity rates of each employee and automatically generates warnings or terminations regarding their productivity without any input from their human managers. Between August 2017 and September 2018, Amazon fired in its Baltimore warehouse 300 full-time employees (the so-called ‘pickers’) for productivity reasons (approx. 10% of its staff annually).⁷⁴

This is a stark example of how algorithmic management may augment managerial prerogatives. In fact, these dismissals would not have been possible without systematic tracking of employees’ performance through an algorithmic device. In addition, the decision-making process at the basis of the dismissal was not transparent for the dismissed employees. They did not know, neither at the time nor after the termination, which were the productivity rates they had to meet, and how and why they did not meet them. In addition, they had no information that data was being collected and processed by the algorithm that decided to

⁷³ BERND WAAS, *Comparative Overview*, in RESTATEMENT OF LABOUR LAW IN EUROPE. VOLUME I. THE CONCEPT OF EMPLOYEE i, xxvii-lxvii (Bernd Waas & Guus Heerma van Voss eds., 2017).

⁷⁴ Colin Lecher, *How Amazon Automatically Tracks and Fires Warehouse Workers for ‘Productivity’*, THE VERGE (April 25, 2019), <https://www.theverge.com/2019/4/25/18516004/amazon-warehouse-fulfillment-centers-productivity-firing-terminations>, already discussed by Adams-Prassl, *supra* note 5, at 133-136.

terminate their employment. This, again, can be considered as an archetypical case of algorithmic opacity at work.

It is now time to understand how this case could be decided before an Italian employment court, simulating a claim brought by a picker asserting that he was unfairly terminated because Amazon allegedly violated the limits to employers' monitoring powers. In running this simulation, we will assume that the dismissal for poor performance in itself could have been considered grounded under Italian law,⁷⁵ and we will just focus on the issues relating to the data collected and processed by the algorithmic device that constantly tracked the picker's productivity to terminate him with a fully automated decision.⁷⁶ In this respect, it is critical to consider that, when certain data is collected and processed by the employer in violation of employment and data protection laws, these cannot be legitimately used as evidence in a claim, including unfair dismissal ones.⁷⁷ Therefore, a dismissal based on evidence illegitimately gathered will have to be considered unfair under Italian law, irrespective of whether the employer, theoretically, had factual and legal grounds for dismissing that employee for poor performance.

In a fact pleading system as the Italian one, the claimant employee, at the outset of the case, has to allege the facts on which he establishes his claim and has to offer the evidence on which he wants to rely in support of his factual allegations.⁷⁸ Nevertheless, in an unfair dismissal claim, the claimant employee has to only allege and demonstrate the fact that he was dismissed, because Italian law explicitly switches to the employer the burden of proving that the dismissal was grounded.⁷⁹ This means that, if Amazon does not want to lose the case, it will have to be able to gather and offer evidence regarding the termination decision automatically made by the algorithm to show that the dismissal was factually and legally grounded on the picker's poor performance.

Notwithstanding the above, it can be argued that the scope of the burden of proof covers not only the grounds of the dismissal, but also the fact that the data relating to the picker's productivity, used to automatically terminate him, were legitimately collected and processed by Amazon through its algorithmic device, as this was an integral part of the decision-making process that led to the dismissal. Therefore, Amazon bears the risk of losing the case if it fails to produce in court

⁷⁵ It needs to be noted that this cannot be taken for granted, as the case-law requires the employer not only to prove the poor performance of the employee, compared to the ones of his colleagues performing similar tasks, over a prolonged period of time, but also that the poor performance is the exclusive result of the employee's serious lack of diligence, and is not at all attributable to the way the employer organizes its workforce: for a review of the Italian case-law, see Elena Gramano, *Sul licenziamento intimato per scarso rendimento*, 6 ARGOMENTI DI DIRITTO DEL LAVORO 1501 (2017).

In addition, Italian employers, before serving any disciplinary measure including dismissal, have to carry out a disciplinary procedure, where the employee can defend himself against the objections made against him by the employer. For the purposes of our simulation, we will also assume that Amazon fulfilled this duty.

⁷⁶ The Amazon case probably does not fall within the general prohibition of automated decision-making under Article 22(1) GDPR, but rather, falls within the exception under Article 22(2)(a) GDPR. However, Amazon's algorithmic management device implementation would be probably considered unlawful, as it did not respect the safeguards provided under Article 22(3) GDPR. For a general overview on this issue, see *supra* Section II.

⁷⁷ Within the employment law domain, this is provided by Article 4(3) of the Law No. 300 of 1970. Within the data protection law domain, this is provided by Article 2-*decies* of the Legislative Decree No. 196 of 2003. On this topic, see Cinzia Gamba, *Il controllo a distanza delle attività dei lavoratori*, 2 COMP. LAB. L. & POL'Y J. 122 (2016); MARCO BARBIERI, *L'utilizzabilità delle informazioni raccolte: il Grande Fratello può attendere (forse)*, in *CONTROLLI A DISTANZA E TUTELA DEI DATI PERSONALI DEL LAVORATORE* 183, 205-208 (Patrizia Tullini eds., 2017) and ALESSANDRA SARTORI, *IL CONTROLLO TECNOLOGICO SUI LAVORATORI. LA NUOVA DISCIPLINA TRA VINCOLI SOVRANAZIONALI E MODELLI COMPARATI*, 205-208 (2020).

⁷⁸ Article 414 of the Italian Civil Procedural Code provides that the claimant has to file an initial motion that has to contain 'the statement of facts and law on which the claim is based' and 'the specific indication of the evidence which the movant intends to exhibit and of the documents exhibited', see Grossi & Pagni, *supra* note 47, at 326-327.

⁷⁹ Article 5 of the Law No. 604 of 1966 specifically provides that the burden of proof of the legitimate grounds of the dismissal rests upon the employer: see ILO, *supra* note 38, at 107-108.

the evidence regarding the data that fed the algorithm, and that they were gathered in compliance with data protection and employment laws. With regard to data protection law, Amazon will thus have to prove not only that it complied with the organizational requirements provided under the GDPR,⁸⁰ but also that the data processing activity has respected all the principles laid down under Article 5(1) GDPR.⁸¹ With regard to employment law, Amazon will have to prove not only that it gave prior and adequate information to the picker regarding the modalities in which the algorithmic device was used to remotely monitor him,⁸² but also that this device was installed in compliance with Article 4 of the Law No. 300 of 1970, that generally⁸³ prohibits remote monitoring of employees' working activity, unless there are certain specific needs that would allow the employer to set up a monitoring device,⁸⁴ from which may also derive the possibility of remote control of the activities of the employees, whose use has to be in any case regulated by a policy which must previously be either agreed with the trade unions or authorized by the Italian Labour Inspectorate.⁸⁵

This conclusion is not only based on the specific provision that, under Italian law, states that the burden of proving the factual and legal grounds of the dismissal lies on the employer,⁸⁶ whose scope would be in any case limited to the cases when the data collected and processed while remotely monitoring an employee are used as grounds to dismiss him. Rather, it is possible to reach the same conclusion relying on other provisions that specifically restrict the managerial prerogative of remotely monitoring the workforce. From a data protection law perspective, it has been already seen in Section II that Article 5(2) GDPR provides that the employer, as a data controller, must be able to demonstrate that the processing has been carried out in compliance with the principles set out at Article 5(1) GDPR, a concept later restated by Article 24(1) GDPR. There is already a general consensus, among commentators, that these provisions shift the burden of proof to the data controller.⁸⁷ Therefore, Amazon would have the general burden of proving that its algorithmic management device lawfully collected and processed picker's data while he performed his tasks, regardless of the fact that these data were used to terminate his employment relationship. From an employment law perspective, Italian scholars agree that, when the law provides that managerial prerogatives can be exercised only when certain substantial or procedural requirements are met, it is the employer that has to demonstrate within a trial that it complied with them, also in absence of a specific provision shifting the burden of proof to the employer.⁸⁸ Therefore, Amazon would have the burden of proving that the picker was remotely monitored in compliance with Article 4 of the Law No. 300 of 1970.

⁸⁰ Namely, that it has: provided the employee with a series of information (Article 13 of the GDPR); carried out a data protection impact assessment (Article 35 GDPR); and, maintained a record of processing activities (Article 30 GDPR). For an overview on these provisions, *see supra* Section II.

⁸¹ Which are: lawfulness; fairness and transparency; purpose limitation; data minimisation; accuracy; storage limitation; integrity and confidentiality. For an overview on this provision, *see supra* Section II.

⁸² This information requirement is set out by Article 4(3) of the Law No. 300 of 1970.

⁸³ According to Article 4(2) of the Law No. 300 of 1970, this prohibition does not apply to those devices specifically used to perform the working activity or to the ones used to control access to the workplace and attendance.

⁸⁴ According to Article 4(1) of the Law No. 300 of 1970, these monitoring devices can be set up, but only for organizational and production needs, for safety at work reasons or for protecting business assets.

⁸⁵ Aloisi & Gramano, *supra* note 62, at 116-119. Note that these policies normally limit the possibility for an employer to indiscriminately use data collected through these devices for disciplinary reasons.

⁸⁶ *See supra* note 79.

⁸⁷ PAUL VOIGT P. & AXEL VON DEM BUSSCHE, THE EU GENERAL DATA PROTECTION REGULATION (GDPR). A PRACTICAL GUIDE 31-32 (2017) and Docksey, *supra* note 56, at 567-568, who says that the burden of proof shifts to the controller, but only when the data subject has offered *prima facie* evidence of an unlawful processing activity.

⁸⁸ ANTONIO VALLEBONA, L'ONERE DELLA PROVA NEL DIRITTO DEL LAVORO 61-67 and 129-137 (1988).

As a result, if Amazon wants to meet this burden of proof, it will have to make transparent within the trial the whole automated decision-making process, from the collection of the picker's data to the reasons behind the termination decision made by its algorithmic device through the processing of these data. Assuming for the purposes of this simulation that Amazon respected all the other requirements set out by data protection and employment laws,⁸⁹ the company would reveal to the court a probable violation of Article 4 of the Law No. 300 of 1970⁹⁰ and what seems an undeniable breach of Article 5 GDPR. This is why the collection and processing of the picker's data would be contrary, at least,⁹¹ to the principle of data minimization, which provides that personal data should only be processed if the chosen legitimate purpose cannot be reasonably fulfilled by other means.⁹² In the Amazon's case, the purpose of measuring pickers' performance, also for disciplinary reasons, could have certainly been fulfilled through less intrusive means, not involving a huge amount of data processed by an algorithmic management device without any human intervention.

To sum up, when the burden of proof is totally shifted to the employer, this entirely bears the risk of losing the case for the failure of demonstrating the decision-making process behind the algorithm. Therefore, if he does not want to unveil within the trial the substantial truth hidden behind an opaque algorithmic management device or if he cannot do it because this is technically difficult or even impossible, the defendant employer will lose the case against the claimant employee. On the contrary, if he decides to fulfil its burden of proof, the employer will have to offer evidence to show to the court that all the limits to the legitimate exercise of his managerial prerogatives were respected: something that, at least in the case of our simulation, would be improbable. Therefore, the rules that entirely switch the burden of proof to the employer constitute a strong incentive to set up only those algorithmic devices whose underlying decision-making logic and consequences for employees can be made transparent within a trial and, at least for a rational employer that does not intend to bear additional legal, managerial and reputational costs, only those that can be implemented in compliance with data protection and employment laws limiting the managerial prerogative of remotely monitoring the workforce.

B. Bringing a claim based on the alleged violation of a non-discrimination duty: the ML recruiting tool that does not like women

From 2014 to 2015, Amazon experimented a hiring tool that used AI to give job candidates scores ranging from one to five stars. But, by 2015, the company realized that this ML algorithm was not rating candidates for technical positions in a gender-neutral way, although gender was not a variable directly inputted in

⁸⁹ See *supra* notes 76, 80 and 82.

⁹⁰ First, it does not seem that an algorithm specifically intended to remotely monitor the workforce to structurally terminate the worst performers may be considered a device 'specifically used to perform the working activity' of Amazon's pickers. Therefore, Amazon could not effectively trigger the provision under Article 4(2) of the Law No. 300 of 1970, on which *see supra* note 83. Second, it is debatable that, given the general prohibition to remotely monitor employees' working activity, case-law would consider a legitimate 'organizational and business need' under Article 4(2) of the Law No. 300 of 1970, on which *see supra* note 84, the Amazon's need of remotely monitor pickers' performance for disciplinary reasons: *see* ALESSANDRA INGRAO, IL CONTROLLO A DISTANZA SUI LAVORATORI E LA NUOVA DISCIPLINA PRIVACY: UNA LETTURA INTEGRATA 162 ff. (2018) and PATRIZIA TULLINI, *Il controllo a distanza attraverso gli strumenti per rendere la prestazione lavorativa. Tecnologie di controllo e tecnologie di lavoro: una distinzione possibile?*, in *CONTROLLI A DISTANZA E TUTELA DEI DATI PERSONALI DEL LAVORATORE* 97, 102 ff. (Patrizia Tullini eds., 2017). In addition, note that, as pointed out *supra* at note 85, trade unions and the Italian Labour Inspectorate normally limit the possibility for an employer to indiscriminately use data collected through these devices for disciplinary reasons.

⁹¹ Nevertheless, if the court deems illegitimate to indiscriminately use data collected through these devices for disciplinary reasons as pointed out *supra* at note 90, this would also amount to a violation of the purpose limitation principle provided under Article 5 GDPR: *see* Ingrao, *supra* note 90, at 176 ff.

⁹² de Terwangne, *supra* note 81, at 317.

the system. Amazon's algorithmic models were trained to rate applicants on the basis of resumes submitted to the company over a 10-year period. Since most of them came from men, the system taught itself to prefer male candidates over female ones. First, it penalised applications containing the word 'women's', as in cases where this was just reported to 'women's chess club captain'. Second, it did the same with reference to applicants that attended all women's colleges. Third, it favoured candidates who described themselves using verbs that were more often used by male applicants.⁹³

This is another example of how algorithmic management practises can augment managerial prerogatives and, more importantly, of how these managerial decisions can end up being biased. As already pointed out in Section I, using AI, and above all ML algorithms, could perpetuate discriminatory practises in the future and, potentially, on a larger scale than in the past. In addition, compared to the algorithmic tool described in the first case-study, this is even more problematic in terms of algorithmic opacity. First, it would be extremely difficult for rejected applicants to even suspect that they have been discriminated. Second, even if they had the suspect that the selection was biased, they would need evidence to successfully bring a discrimination claim against the recruiter, an almost impossible task for people that do not have access to any information regarding the characteristics of other applicants, the logic involved in the algorithmic decision-making process, and the outcome of the selection.⁹⁴

It is now time to understand how this case could be decided before an Italian employment court, simulating a claim brought by a female applicant asserting that she was discriminated because of her sex. In running this simulation, we will focus on the third example of discriminatory outcome, *i.e.*, the algorithm favoured candidates who described themselves using verbs that were more often used by male applicants, that would constitute an example of indirect proxy discrimination based on sex, according to the provision which has transposed in Italy the relevant EU definition of indirect discrimination.⁹⁵ In addition, since Amazon collected personal data from the applicants to vet their resumes, we will also assume that the company has just formally complied with the organizational requirements provided by the GDPR⁹⁶ and, prior to carrying out the selection through its automated hiring tool, has provided all the applicants, only formally in compliance with Article 13 GDPR, with very general information about the decision-making process, just informing them that an algorithm, fed by data contained in the

⁹³ Jeffrey Dastin, *Amazon scraps secret AI recruiting tool that showed bias against women*, REUTERS (October 11, 2018), <https://www.reuters.com/article/us-amazon-com-jobs-automation-insight-idUSKCN1MK08G>.

⁹⁴ Kelly-Lyth, *supra* note 59, at 21.

⁹⁵ Under EU law, the distinction between direct and indirect discrimination in the context of algorithmic decision-making may be categorized as follows: a) direct discrimination, which occurs when a certain person is treated less favourably than another because of a protected characteristic: *e.g.*, the algorithmic decision-making system downgrades all the applications filed by female applicants because being a woman is directly inputted as a negative variable in the model or because they contain a proxy, that is exclusively connected to being a woman; or b) indirect discrimination, which occurs when an apparently neutral provision, criterion or practice would put a person of one protected group at particular disadvantage, unless this can be objectively justified: *e.g.*, the algorithmic decision-making system downgrades all the applications, irrespective of whether they have been filed by male or female applicants, because they contain a proxy, that is statistically, but not exclusively, correlated to being a woman. This distinction is substantially in line with the one made by Hacker, *supra* note 15, at 1151-1154; Xenidis & Senden, *supra* note 15, at 151; Gerards & Xenidis, *supra* note 18, at 63-64 and 67-73; Kelly-Lyth, *supra* note 59, at 7-8. While the first and second proxies may be deemed as direct discrimination, the third one used by Amazon's algorithm can be considered as an example of indirect discrimination.

⁹⁶ More specifically, we will assume that Amazon has carried out a data protection impact assessment (Article 35 GDPR) on its hiring tool, but without specifically identifying the risk of discrimination. In addition, we will assume that Amazon employs more than 250 persons, and has thus maintained a record of processing activities (Article 30 GDPR) related to the hiring tool, including the number of male and female applicants that participated to the specific selection process in which the claimant has been involved. For a general overview on these provisions, see *supra* Section II.

resumes, would have been used in vetting the applicants.⁹⁷ Apart from this, no further information has been provided to the applicants. We will also assume that the claimant decided to apply for the vacancy with other three female friends and that all of them were rejected by the algorithm. This is the reason why, after reading on the internet that algorithms can be biased, she started suspecting that Amazon could have implemented a discriminatory hiring system. These facts are not easy to materialize in the real world, but assuming them would be useful for the purposes of this simulation, *i.e.*, showing how certain rules may help employees to uncover algorithmic discriminations. Therefore, she brought a claim against the company, arguing that she was discriminated because of her sex, but without complaining about possible violations of the GDPR.

As seen when analysing the first case study, the claimant employee, at the outset of the case, has to allege the facts on which she establishes her claim and to offer the evidence on which she wants to rely on in support of his factual allegations.⁹⁸ Nevertheless, in a discrimination claim, there is a specific provision, which has transposed in Italy the applicable EU Directive, holding that, when the claimant employee establishes facts from which it may be presumed that there has been an indirect discrimination, then it is for the respondent to prove that this was not the case, or that the differential treatment could be objectively justified.⁹⁹ This mechanism can be read as a partial switch of the burden of proof. This means that, if the claimant manages to offer *prima facie* evidence of the alleged discrimination, the risk of losing the case shifts to Amazon, unless the company can prove that the discrimination did not occur or that there was an objective justification for the unequal treatment. Since Amazon's algorithmic device actually discriminated female applicants and there was no objective justification whatsoever, it is possible to conclude that the court could rule in favour of the claimant, but only if she manages to offer *prima facie* evidence of discrimination that would require, at minimum, that there is a statistical disparity between the impact of the algorithmic decision on the protected group, on the one hand, and on a comparable group, on the other,¹⁰⁰ *e.g.*, the outcome of the selection process statistically penalised women over men. The issue here is that it would be almost impossible for claimant to obtain this information.

Nevertheless, since the entry into force of the GDPR, workers have been equipped with another regulatory tool that may help them in collecting information to be used as evidence in court. As already seen in Section II, Article 15 GDPR allows the claimant to exercise a right to access against Amazon, that would have the duty to provide her 'meaningful information about the logic involved' in the automated decision made by the algorithm, as well as on the consequences of such processing for the applicant.¹⁰¹ Since Amazon has also a duty to maintain a record of the processing activities under Article 30 GDPR, the company may easily provide claimant with precise information on the outcome of the selection process, something that would show how women were statistically penalised by the algorithm.¹⁰² This would be critical in helping claimant to try to

⁹⁷ Note that, in this case, Amazon's decision would fall within the scope of Article 22 GDPR. This should have two consequences. First, Amazon's device would be probably unlawful for the same reasons highlighted *supra* at note 76: more generally on this point, Kelly-Lyth, *supra* note 59, at 18-19. Second, Amazon would have been in breach of Article 13 GDPR, because it would have provided the applicants with 'meaningful information about the logic involved, as well as the significance and the envisaged consequences of such processing for the data subject', because they were subject to an automated decision-making tool pursuant to Article 22 GDPR. For a general overview on this issue, see *supra* Section II.

⁹⁸ See *supra* note 78.

⁹⁹ Article 40 of the Legislative Decree No. 158 of 2006, which has transposed Article 19 of Directive 2006/54/EC.

¹⁰⁰ Hacker, *supra* note 15, at 1169.

¹⁰¹ See *supra* note 97.

¹⁰² See *supra* note 96.

offer evidence of a *prima facie* discrimination, something that may switch the burden of proof to Amazon, thus potentially determining a ruling in favour of the claimant.¹⁰³

To sum up, when the burden of proof is partially shifted to the employer, this bears the risk of losing the case for the failure of demonstrating that the decision-making process behind the algorithm was not discriminatory, but only once the claimant has managed to offer *prima facie* evidence of discrimination. Although this may be difficult, but not impossible,¹⁰⁴ for litigants, these rules may still constitute an incentive for employers to set up algorithmic devices whose underlying decision-making logic and consequences for employees are fair and can be made transparent. This is even more true when this partial shift in the burden of proof is combined with information and access rights under Articles 13 and 15 GDPR, that may require employers to offer data subject significant information on the functioning of the algorithmic management device they have decided to implement. Nevertheless, there are other tools that may even more effectively provide evidence of the exact functioning of algorithmic management devices, as it will be seen analysing the third and last case study.

C. *Bringing a claim based on the alleged worker's classification as an employee: the invisible algorithm that guides and disciplines couriers*

Flex is the program used by Amazon to deliver parcels throughout the US. Amazon uses couriers, classified as independent contractors, who have to own a personal smartphone with the app Flex installed and use their own car. After securing a working block through Flex app, each courier has to get in line behind the other cars at a fulfilment centre, check in, receive the goods to be delivered, scan and pack them into the car, and then deliver them to the client following the app's suggested route. When working blocks go unclaimed, Amazon increases couriers' pay, to incentivise drivers to accept them. Couriers may provide Amazon with their tracking data, including location, movements, speed at which they are traveling and other personally identifiable information. If they deny Amazon access to these data, this could affect the availability and functionality of the Amazon Flex app. Couriers also claim that they can be individually deactivated from using the Flex app in case of serious mistakes, and that they can grab working blocks less frequently in case of minor ones.¹⁰⁵

As others from the platform work sector, this is maybe the starkest example of how algorithmic management can augment managerial prerogatives to the

¹⁰³ However, although Article 15 may be theoretically useful in collecting information and evidence, it shall be noted that certain shortcoming remains, because analysing information regarding algorithmic decision-making to spot potential discrimination can be extremely time-consuming and technically challenging for individual litigants, as pointed out by Hacker, *supra* note 15, at 1173-1174; Kullmann, *supra* note 15, at 13; Kelly-Lyth, *supra* note 59, at 23. In addition, it cannot be taken for granted that companies will voluntarily provide potential litigants with meaningful information, so that workers would need to enforce their access rights, something that would worsen the abovementioned shortcomings. Nevertheless, it shall be taken into account that, according to the ECJ in *Meister*, a 'refusal to grant any access to information may be one of the factors to take into account in the context of establishing facts from which it may be presumed that there has been direct or indirect discrimination', Case C-415/10, *Meister*, para 47. Therefore, even if companies do not voluntarily comply with his duty under Article 15 GDPR, a failure to disclose may be used by a court as a factor in assessing whether the claimant managed to establish a *prima facie* case of discrimination.

¹⁰⁴ See Tribunal of Bologna 31 December 2020, on which Antonio Aloisi & Valerio De Stefano, "*Frankly, my rider, I don't give a damn*", RIVISTA IL MULINO (January 7, 2021), <https://www.rivistailmuliNo.it/a/frankly-my-rider-i-don-t-give-a-damn-1> and, more specifically on the burden of proof issue, Giovanni Gaudio, *La Cgil fa breccia nel cuore dell'algoritmo di Deliveroo: è discriminatorio*, 2 RIVISTA ITALIANA DI DIRITTO DEL LAVORO 188 (2021). In this case, that will be discussed in greater details in Section IV below, the claimants managed to offer *prima facie* evidence of algorithmic discrimination and won the case against the respondent company, which was unable to prove that the discrimination did not occur or that the potential differential treatment could have been objectively justified.

¹⁰⁵ Bryan Menegus, *Amazon's Last Mile*, Gizmodo, GIZMODO (November 16, 2017) <https://gizmodo.com/amazons-last-mile-1820451224>.

detriment of workers' rights.¹⁰⁶ Couriers are classified as independent contractors and not employees, thus being excluded from employment protective legislation. Nevertheless, Amazon is using control mechanisms that are only apparently soft but are substantially pervasive as the traditional ones. Certainly, couriers do not receive explicit and direct orders from a manager. However, they receive implicit instructions and, in case of non-compliance, can suffer from negative consequences up to deactivation. Since control is one of the main criteria used to classify a worker as an employee in Italy, like in most of European jurisdictions,¹⁰⁷ mystifying it would be an effective strategy to get an immunity from employment protective legislation.¹⁰⁸ Therefore, algorithmic opacity is again at stake here, because couriers might never know the reasons why, in a certain period, they have grabbed less blocks than usual and, in most serious cases, why they have been deactivated. As a result, they may struggle in successfully bringing a claim against Amazon to be classified as employees.

It is now time to understand how this case could be decided before an Italian employment court, simulating a claim brought by an Amazon's courier asserting that he was an employee and not an independent contractor. In running this simulation, we will assume that the existence of disciplinary mechanisms, *i.e.*, the fact couriers may grab less blocks or even be deactivated when they do not comply with implicit instructions given to them by Amazon, may be a crucial criterion to classify the claimant as an employee under Italian law.¹⁰⁹ In addition, since Amazon collected personal data from the couriers, we will also assume that the company has formally complied with the organizational requirements provided by the GDPR¹¹⁰ and that, prior to being engaged as an independent contractor, has been informed that Amazon implemented an algorithm that, among other things, managed the assignment to working blocks and also tracked the courier while performing his activity through the Amazon Flex app.¹¹¹ No further information was provided to the couriers. We will also assume that, after completing certain deliveries after the expected time, the claimant started being assigned with less working blocks. Later in time, he did not complete a specific delivery because he was involved in a car accident and, starting from that day, he was deactivated, with no possibility of challenging this decision. We will also assume that the claimant knows that other colleagues, in similar situations, ended up being deactivated from the Flex app.

Under Italian law, there are no exceptional rules that, in classification claims, modifies the customary rule on burden of proof. Therefore, at the outset of the case, the claimant courier has to allege all the facts on which he establishes his claim and has to offer the evidence on which he wants to rely on in support of his

¹⁰⁶ Adams-Prassl, *supra* note 5, 131-132.

¹⁰⁷ Waas, *supra* note 73, at xliii-xlvii.

¹⁰⁸ Adams-Prassl, *supra* note 5, at 144-145.

¹⁰⁹ This point is debated among Italian scholars, but the most recent decision on the topic has classified as employee a platform worker formally engaged as independent contractor by a food delivery company, holding that the existence of disciplinary mechanism is a critical sign of subordination: Tribunal of Palermo 20 November 2020, on which see Antonio Aloisi, *Demystifying Flexibility, Exposing the Algorithmic Boss: A Note on the First Italian Case Classifying a (Food-Delivery) Platform Worker as an Employee*, COMP. LAB. L. & POL'Y J. (Dispatch No. 35 - Italy June 2021) and Maurizio Falsone, *Nothing New Under The Digital Platform Revolution? The First Italian Decision Declaring the Employment Status of a Rider*, 7 ITA. L. J. (forthcoming 2021). On the criteria used to classify a worker as an employee in Italy, see, in general, Ales, *supra* note 52, at 351.

¹¹⁰ More specifically, we will assume that Amazon has carried out a data protection impact assessment (Article 35 GDPR) on the algorithm behind its Flex app. In addition, we will assume that Amazon employs more than 250 persons, and has thus maintained a record of processing activities (Article 30 GDPR), including the number and duration of the working blocks that each courier accepts. For a general overview on these provisions, see *supra* Section II.

¹¹¹ There is no specific information to assess whether this algorithm would fall within the scope of Article 22 GDPR. If this is the case, there would be the same consequences highlighted *supra* note 97. For a more general overview on this issue, see *supra* Section II.

factual allegations.¹¹² The issue here is that, before bringing his claim, he has only the suspect that Amazon's algorithm uses disciplinary mechanisms against couriers, but he does not have any evidence that may confirm this alleged fact. If he fails to offer evidence when he initiates his claim against Amazon, he will lose the case because of the rules on the burden of proof. Nevertheless, there are certain tools that may help him in gathering evidence that may be useful to effectively plead his case.

Before initiating the claim, the courier may try to enforce his right of access under Article 15 GDPR with a view to gather evidence that may substantiate his suspect. First, the courier may exercise this right to request Amazon to provide him the number and duration of each block worked by the courier. This information would be useful to prove that, starting from a certain moment, the courier was assigned with less working blocks and was finally deactivated from the Flex app. In addition, the courier may request Amazon to inform him of the existence of any data processing activity that led to the deactivation of his account from the Flex app and, if this exists, on the reasons that led to the deactivation. This information would be even more useful for the courier, because he could be provided with evidence on the existence of mechanisms used by Amazon's algorithm to discipline a courier that did not diligently complied with the soft instructions given to him. For the purposes of this simulation, we will assume that Amazon fulfilled the first request filed by the courier, confirming that, starting from a certain moment, the courier was assigned with less working blocks and was finally deactivated from the Flex app. Nevertheless, the company provided the courier only general information regarding the second request, confirming the existence of a data processing activity with regard to the decision of deactivating his account, without any information on the reasons that led to this decision.¹¹³

The courier has then gained enough information to try to plead the facts of his claim against Amazon. However, this would not be sufficient to win the case, because, due to opacity issues, he still lacks specific information, and above all evidence, on the existence of any mechanisms, hidden behind Amazon's algorithm, potentially used to discipline its couriers. Therefore, the claimant decides to plead these facts also in absence of any pre-established evidence, indicating in his initial claim that he will try to prove them asking the court to call as witnesses two categories of individuals: first, his colleagues who were deactivated by Amazon; second, those Amazon's employees who developed the Flex algorithm or, in any case, those who directly supervised its operations in managing the couriers. His colleagues' witness statements could not constitute evidence of the alleged facts, because they have no direct knowledge, but a mere suspect, of the existence of any disciplinary mechanisms. However, these may be useful to further substantiate his claim and convince the court to call as witnesses Amazon's employees, who would indeed have direct knowledge of the functioning of the Flex's algorithm that, otherwise, would have inexorably remained hidden behind technical or legal secrets.¹¹⁴

Lastly, another technical tool would be even more effective than witness evidence to have direct and full knowledge, within the trial, of the substantive

¹¹² Ales, *supra* note 52, 370.

¹¹³ This is exactly what happened in Tribunal of Palermo 20 November 2020, where the claimant platform worker, before the trial, exercised his right of access under Article 15 GDPR and the company provided only general information on the reasons that led to the deactivation of his account.

¹¹⁴ It shall be noted that, according to Italian case-law, the witness testimony rendered by Amazon's employees would not constitute a violation of neither their duty of loyalty nor the regulation on trade secrets, because, within certain limits, the right of defence of the claimant worker may prevail over the confidentiality needs of the company, also considering that, under Italian procedural laws, it is the Judge (and not the parties) who examines the witnesses and, in conducting the witness examination, shall balance the defence needs of the worker with the confidentiality needs of the company: *see*, among many, Italian Corte di Cassazione 8 August 2016, No. 16629.

truth hidden behind the algorithm. A court can in fact order an expert to inspect the Amazon's algorithm and provide a witness expert opinion regarding its functionalities. Although experts are normally called to give their opinions on facts and evidence that have been already introduced within the trial by the parties, Italian case-law has admitted that they can be used as auxiliaries of the court in discovering secondary facts connected to the primary facts alleged by one of the parties, through the inspection of scenes or other things, when the court deems this necessary to ascertain facts of technical nature that cannot be otherwise discovered by the party bearing the burden of proof.¹¹⁵ Discovering evidence on the functioning of an opaque algorithmic management device through its inspection by an expert witness seems to perfectly fit the above definition, also considering that the introduction of these tools has augmented the already existent information asymmetries between workers and entrepreneurs. First, the expert can directly discover how a certain decision has been made through reverse engineering practises. Second, when revealing that the substantive truth behind the algorithm is technically not feasible, the expert can in any case provide the court with general information on the functioning of the algorithm, designing an alternative model to produce a comparable outcome to a certain decision, or offering a counterfactual explanation on how a certain decision may have been taken by an algorithmic management device.

In this respect, it shall also be considered that, under Italian law, employment judges have been granted with broad powers to gather evidence within the trial.¹¹⁶ When the substantive truth of the case remains hidden behind the algorithm, they may thus supplement the evidence offered by the claimant with a view to understand if and how his working relationship has been managed by an opaque algorithmic device. Therefore, even if the claimant courier did not indicate in his initial pleading the witness testimony of Amazon's employees or the expert's inspection of the algorithm as specific means of evidence to rely on, it can be argued that an Italian employment judge could have issued *ex officio* these measures, in order to reveal within the trial whether Amazon actually exercised disciplinary powers on his couriers through his opaque algorithmic management device.¹¹⁷ If this were the case, the courier would have thus won the case, and the court would have consequently classified him as an employee.

To sum up, when the burden of proof lies on the claimant worker, he entirely bears the risk of losing the case for the failure of demonstrating the decision-making process behind the algorithm. Nevertheless, there are certain rules that can help the claimant worker in reducing the risk of losing the case due to algorithmic lack of transparency. First, information and even more access rights under Articles 13 and 15 GDPR may constitute an effective tool to obtain, before the trial, significant information on the functioning of opaque algorithmic management devices that entrepreneurs have decided to implement. Second, granting employment judges with broad powers to gather evidence *ex officio* may contribute to reveal within the trial the substantive truth hidden behind the algorithm. These regulatory tools would thus help workers to obtain those means of evidence that are necessary to satisfy their burden of proof in classification claims, thus practically shifting part of the risk of losing the case on the defendant employer.

¹¹⁵ Italian Corte di Cassazione 26 February 2013, No. 4792 and, more recently, Italian Corte di Cassazione 8 February 2019, No. 3717. Among scholars, Lotario Dittich, *La ricerca della verità nel processo civile: profili evolutivi in tema di prova testimoniale, consulenza tecnica e fatto notorio*, 1 RIVISTA DI DIRITTO PROCESSUALE 108, 120-123 (2011) and PAOLO COMOGLIO, NUOVE TECNOLOGIE E DISPONIBILITÀ DELLA PROVA 139-141 (2018).

¹¹⁶ Specifically with reference to classification claims, Ales, *supra* note 52, at 370.

¹¹⁷ ILO, *supra* note 38, at 106, with specific reference to the power of calling witnesses not mentioned by the parties.

IV. CONFIRMING THE PRELIMINARY COMPARATIVE ASSUMPTIONS:
TRACKING DOWN REGULATIVE ANTIBODIES AGAINST ALGORITHMIC OPACITY IN
THE EU LEGAL SYSTEMS AND BEYOND

As already anticipated in Section II, these techniques have been widely experimented in the EU and beyond, and may be effectively used, both before and within a claim, to foster algorithmic transparency and consequently avoid potential abuses of managerial prerogatives. In other words, many jurisdictions already have more or less strong regulatory antibodies to face the challenges deriving from the rise of algorithmic bosses.

Before a claim has been brought, information and access rights can be critical for employees to collect information that may be used in pleading the facts and presenting the evidence to a court, above all in civil-law EU legal systems that lack pre-trial discovery procedures and generally ban phishing expeditions once the trial has begun.¹¹⁸

Information and access rights under Articles 13 and 15 GDPR are the most important ones, also because they are uniform in all EU legal systems. These provisions have a far-reaching scope, because they can be triggered by an individual each time an entrepreneur uses algorithmic management devices fed with that individual's data. Another advantage is that these rights can be effectively enforced in the EU, because Articles 77 and 79 GDPR allow data subjects to lodge complaints both before supervisory authorities and courts in case of non-compliance with the GDPR. The importance of these rights when dealing with algorithmic management devices has already been tested in Italy and in the Netherlands in relation to certain cases involving platform workers.

In a case decided by the Tribunal of Palermo,¹¹⁹ a platform worker brought a claim against the food-delivery company Glovo requesting to be classified as an employee instead of as an independent contractor, after his account was deactivated by the platform. With a view to gather evidence that may have been useful in pleading the facts and presenting the evidence, the platform worker decided, before bringing the claim, to exercise his right of access under Article 15 GDPR, requesting Glovo to provide him information regarding the number and duration of each session that he worked for the platform as well as the existence of any data processing activity that led to the deactivation of his account from the Glovo app and, if this existed, on the reasons that led to the deactivation. Glovo fully complied with the first request, providing the claimant precious evidence to demonstrate that Glovo *de facto* terminated him. However, it only formally complied with the second request, and it did not give the rider any valuable information regarding the reasons that led to his deactivation.

Nevertheless, the rider could have tried to judicially enforce his right to access in order to gather even more useful evidence to present it in his classification claim, as it has recently happened in the Netherlands.¹²⁰ In three recent cases decided by the Amsterdam District Court, certain drivers engaged by two different platform companies, Uber and Ola, judicially enforced their access requests made under Article 15 GDPR. While not all the requests made by these drivers were granted, the Amsterdam District Court ordered Uber to provide access to the personal data used as the basis for the decision to deactivate certain

¹¹⁸ More generally, Trocker & Varano, *supra* note 47, at 255, observes that those provisions that, in civil-law countries, establishes information rights that can be enforced judicially in the context of specific legal relationships can be considered, from a comparative point of view, as functionally equivalent to pre-trial discovery procedures typical of common-law countries.

¹¹⁹ Tribunal of Palermo 20 November 2020.

¹²⁰ Amsterdam District Court 11 March 2021, cases C/13/687315/HARK20-207, C/13/689705/HARK/20-258, and C/13/692003/HARK20-302. The English translation of these cases is available at <https://ekker.legal/2021/03/13/dutch-court-rules-on-data-transparency-for-uber-and-ola-drivers/>.

drivers' account, including data used to establish their individual ranking. Most importantly, after having recognized that Ola implemented an automated systems of discounts and fines, the Amsterdam District Court ordered the company to communicate the main assessment criteria and their role in making automated decisions regarding the workers, so that they could be able to understand the criteria on the basis of which the decisions were made, and check the correctness and lawfulness of the data processing.

The Glovo rider could have also tried to lodge an out-of-court complaint before a national data protection authority (DPA) to obtain compliance with their access request made under Article 15 GDPR. This strategy would have probably been successful looking at a recent decision where the Italian DPA, after an investigation in the form of a data protection audit, acknowledged, among other things, that Glovo was not providing to its riders all the information required under Article 13 GDPR and ordered the company to comply with this provision with regard to future communications to its riders.¹²¹ The DPA found that Glovo collected and processed high amounts of riders' data, who were subject to automated decisions to organize their working shifts and carry out performance management activities. Basically, Glovo implemented a system that used certain criteria, including clients' evaluations and reliability of each rider, to prepare a ranking among them, thus rewarding with more rides the best performers and punishing the worst ones with less opportunities to grab working slots in the future. Nevertheless, Glovo was silent with its riders on the existence of these automated decision-making mechanisms and did not provide them with any information in this respect pursuant to Article 13 GDPR. Therefore, the DPA ordered Glovo to provide to the riders all the information regarding the processing of their data. This included the existence of an automated decision-making systems used to assign working shifts to each rider and manage their performance, as well as meaningful information on the logic used by the Glovo's algorithm and envisaged consequences of the processing of their data for the riders.

The cases discussed above shows how these rights can be enforced, both before courts and DPAs, to collect information and gather evidence that, reducing the information asymmetries between the parties, may be then used by workers to litigate opaque algorithms more effectively.

However, Articles 13 and 15 GDPR are not the only tools that may be used by workers to gather information to be later used in court as evidence. Similar rights may also be negotiated by trade unions to include them in collective bargaining agreements, with a view to enlarge the scope of the information that shall be provided to trade unions and workers by employers when processing their personal data.¹²² This possibility is even expressly envisaged by Article 88 GDPR,¹²³ which allows collective bargaining agreements to 'provide for more specific rules to ensure the protection of the rights and freedoms in respect of employees' personal data in the employment context', which 'shall include suitable and specific measures safeguard the data subject's human dignity, legitimate interests and fundamental rights, with particular regard to the transparency of processing'. In addition, it shall be noted certain Member States have already traditionally provided that trade unions have to be informed and

¹²¹ Italian DPA, 10 June 2021, No. 234: an abstract in English of this decision is available at <https://www.garanteprivacy.it/web/guest/home/docweb/-/docweb-display/docweb/9677611>. On this decision, see Natasha Lomas, *Italy's DPA fines Glovo-owned Foodinho \$3M, orders changes to algorithmic management of riders*, TECHCRUNCH (July 6, 2021), <https://techcrunch.com/2021/07/06/italys-dpa-fines-glovo-owned-foodinho-3m-orders-changes-to-algorithmic-management-of-riders/>.

More recently, see also a similar decision of the Italian DPA, 22 July 2021, against Deliveroo, available at <https://www.garanteprivacy.it/home/docweb/-/docweb-display/docweb/9685994>.

¹²² De Stefano, *supra* note 11, at 45.

¹²³ For a critical remark on the wording of this provision, Adams-Prassl, *supra* note 5, at 144.

consulted before installing monitoring tools in the workplace.¹²⁴ The same regulatory device has been used in Spain to keep pace with the latest technological innovations in the workplace, where a recently enacted law has provided that trade unions have the right to be informed and consulted also when the monitoring power has been exercised by an employer through mathematical calculations or algorithms.¹²⁵ Thanks to this provision, platforms will be obliged to ‘give worker representatives access to the algorithm affecting working conditions.’¹²⁶ These national provisions are of utmost importance to enhance algorithmic transparency, because these rights may be then enforced by trade unions not only judicially, but also through strikes and social unrest, thus better guaranteeing their effectiveness.

When a trial has already started, other rules can incentivize algorithmic transparency. The first set of these rules are those that facilitate the possibility for workers to directly offer evidence that can reveal the substantive truth hidden behind the algorithm. Certain evidence may be directly useful to achieve this: calling witnesses who directly know the functioning of the algorithm and, in particular, appointing expert witnesses to inspect the algorithm and provide a technical opinion describing its functioning. In civil-law systems, rules granting employment judges with broad powers of obtaining evidence may be critical in this respect, because judges may possibly supplement the evidence offered by the worker at the outset of the case, especially when this need emerges from the allegations of the counterparty or from other indicia revealed within the trial in other ways, for example by witnesses called to testify. Although civil-law systems have been characterised by the principle that no party has to help his opponent, we have already seen in Section II that this has been partially watered down, when reforms have been introduced to allow judges to issue *ex officio* measures in order to help one party against his counterparty.¹²⁷ This may facilitate the quest for the substantive truth hidden behind the algorithm when dealing with algorithmic management devices.

The second set of these rules are those that entirely or partially shift the burden of proof to the employer and that introduce presumptions in favour of the employee, which, as it has been seen in the above case-law analysis, foster transparency only indirectly, because an employer will lose the case if he is not able to show how an algorithmic management device has made a certain decision. These regulatory techniques are widespread in several sub-domains of many national employment legal systems, both in the EU and beyond. For example, in termination claims, most Member States specifically provides that the burden of proving the existence of a valid reason for the dismissal shall be on the employer.¹²⁸ This rule is pretty common also in non-EU countries¹²⁹ and it has been adopted by the most important international legal instrument on this topic, *i.e.*, ILO Termination of Employment Convention, 1982 (No. 158).¹³⁰ The same is true in case of discrimination, where EU Directives, harmonizing the legal landscape in all the Member States, provide that the burden of proof is partially

¹²⁴ Voigt & von dem Bussche, *supra* note at 87, at 226-230; Aloisi & Gramano, *supra* note 62, at 109-119; Emanuele Dagnino & Ilaria Armaroli, *A Seat at the Table: Negotiating Data Processing in the Workplace*, 41 COMP. LAB. L. & POL’Y J. 173 (2019).

¹²⁵ Daniel Pérez del Prado, *The Legal Framework of Platform Work in Spain: the New Spanish “Riders’ law”*, COMP. LAB. L. & POL’Y J. (Dispatch No. 36 - Spain July 2021).

¹²⁶ Ane Aranguiz, *Platforms put a spoke in the wheels of Spain’s ‘riders’ law*, SOCIAL EUROPE (September 2, 2021), <https://socialeurope.eu/platforms-put-a-spoke-in-the-wheels-of-spains-riders-law>.

¹²⁷ Chase et al., *supra* note 36, at 9-10, and Trocker & Varano, *supra* note 47, at 255.

¹²⁸ Heerma van Voss et al., *supra* note 70, at 104-109.

¹²⁹ For example, *see* the cases of the following jurisdictions: Samuel Estreicher & Jeffrey M. Hirsch, *Comparative Wrongful Dismissal Law: Reassessing American Exceptionalism*, 92 N.C. L. REV. 343 (2014), Australia at 357-358; Brazil at 366; Canada at 373; Mexico at 432; the UK at 435-436.

¹³⁰ Article 9(2)(a) of ILO Termination of Employment Convention, 1982 (No. 158).

switched to the employer.¹³¹ Similar techniques are also present in many non-EU legal systems, that have often introduced rules to ease the employee's burden of proving that a discrimination occurred.¹³² In classification claims, some EU Member States provide general or specific presumptions of existence of an employment relationship¹³³. More recently, it is worth noting that, the so-called 'Riders' law' in Spain, following a landmark ruling of the Spanish Supreme Court,¹³⁴ has set a specific presumption of existence of an employment relationship for those workers who are managed through algorithmic devices.¹³⁵ Setting a presumption of existence of an employment relationship is a legal technique that has also been recently used by the EU legislator when enacting the EU Directive on transparent and predictable working conditions.¹³⁶ Similar provisions, whose introduction has been recommended by the ILO,¹³⁷ also exist in non-EU countries.¹³⁸

The importance of this second set of rules, and more specifically those that partially switch the burden of proof to the employer, has been already tested in a discrimination claim brought in Italy by trade unions against the food-delivery company Deliveroo.¹³⁹ The claimants, on the basis of certain information made public by the company on its website or reported in the individual contracts entered into with the riders, asserted that Deliveroo's algorithm was discriminatory for trade union reasons, because it allegedly penalized workers that, after having booked a shift, decided not to work during that shift and go on strike instead. The witnesses called by the Judge only partially confirmed the existence of such a mechanism, as alleged by the claimants at the outset of the case. Nevertheless, even in absence of any evidence that shed full light on the functioning of Deliveroo's algorithm within the trial, the Tribunal of Bologna found that it was discriminatory. The claimants, mainly through documents and witness testimonies, managed to prove facts from which it was possible to presume that Deliveroo's algorithm was indirectly discriminatory against those workers that would have wanted to go on strike instead of working during the pre-booked shift. Nevertheless, once the burden of proof switched to Deliveroo, the company was unable to prove that this mechanism was not discriminatory or that the potential differential treatment could have been objectively justified. As a result, although the concrete functioning of the algorithm was not actually revealed within the trial, Deliveroo lost the case against the claimant trade unions.

Other important provisions that switch the burden of proof to the employer are contained in the GDPR¹⁴⁰ and they can be enforced each time the employer is processing employees' data. When dealing with algorithmic management devices, these rules are even more significant than the previous ones. While the provisions listed above switching the customary burden of proof are characterised by domain specificity and can be enforced only in certain types of employment claims, the ones in the GDPR have a far-reaching scope, as they can be triggered each time an algorithmic management device using employees' data is implemented in the

¹³¹ Craig & de Búrca, *supra* note 64, at 989-991.

¹³² *See*, for example, the UK, Kelly-Lyth, *supra* note 59, at 8 and the US, Estreicher & Hirsch, *supra* note 129, at 349.

¹³³ Waas, *supra* note 73, lvi-lxi.

¹³⁴ Tribunal Supremo 25 September 2020 No. 805. For a summary of this decision in English, see Adrián Todolí Signes, *Notes on the Spanish Supreme Court Ruling that Considers Riders to be Employees*, COMP. LAB. L. & POL'Y J. (Dispatch No. 30 - Spain December 2020).

¹³⁵ Pérez del Prado, *supra* note 125, and Aranguiz, *supra* note 126.

¹³⁶ Article 11(b) of Directive (EU) 2019/1152.

¹³⁷ Article 11(b) of ILO R198 - Employment Relationship Recommendation, 2006 (No. 198).

¹³⁸ *See*, for example, Turkey and Russia, Waas, *supra* note 73, at lvi-lxi.

¹³⁹ Tribunal of Bologna 31 December 2020, *supra* note 104.

¹⁴⁰ Articles 5(2) and 24 GDPR.

workplace. Therefore, switching to employers the burden of proof regarding algorithmic compliance with data protection laws may force them to make algorithms transparent before and within a trial, thus uncovering potential violations of both privacy and employment law provisions.

V. ENFORCING EPISTEMIC AND ANTI-EPISTEMIC REGULATORY ANTIBODIES TO FOSTER ALGORITHMIC TRANSPARENCY AND LIMIT ABUSES OF EMPLOYERS' MANAGERIAL PREROGATIVES

The analysis carried out in this article has demonstrated how the rules entirely or partially shifting the burden of proof to the employers or setting presumptions in favour of an employee, the ones granting workers information and access rights, as well as those attributing judges broad power to obtain evidence, are instrumental to show if, how and why an employer has made a managerial decision regarding its workforce through algorithms. Once the truth behind the algorithm has been revealed, then the worker is able to assess whether those employment laws generally devoted to limit managerial prerogatives¹⁴¹ have been actually violated by their employer that decided to use algorithmic management devices. Promoting transparency would be thus strictly instrumental to uncover breaches of employment protective legislation, thus reducing the risk of augmentation of managerial prerogatives that has been identified in Section I: obviously, provided that national employment laws establish effective limits to the exercise of managerial prerogatives within the workplace. Therefore, these legal techniques can constitute effective regulatory antibodies when dealing with the issues posed by the algorithmic revolution, that are mainly related to a structural lack of transparency towards workers.

Nevertheless, it has to be pointed out that, although all these rules are all means to achieve the goal of enhancing algorithmic transparency, they operate through opposite mechanisms if they are assessed as means to achieve the goal of finding the 'substantive truth'¹⁴² within a trial.

On the one hand, the rules on burden of proof are characterized by an anti-epistemic function, because they admit that, when the party having the burden of proof fails to prove certain facts, then 'the facts alleged will be taken to be "not proven", even though the facts alleged may be in fact true', so that there may be a 'divergence between formal legal truth and substantive truth'.¹⁴³ The same can be said for those rules that set presumptions, *i.e.*, those legal mechanisms that deem one fact to be true within a trial, even in absence of specific and direct evidence of that fact, that may be actually false in the real world.¹⁴⁴ Nevertheless, the party that has the burden of proof or against who a presumption is put forward is incentivised to prove it within the trial if he does not want to lose the case. Therefore, those rules switching the burden of proof to the employer and easing the employee's burden of proof thanks to a presumption implicitly foster algorithmic transparency, because constitute strong incentives to set up only those algorithmic devices whose underlying decision-making logic and consequences for employees can be made transparent within a trial. Being aware of the risk of losing the case when unable to prove in court how an algorithmic management device made a specific decision, a rational employer would never use

¹⁴¹ De Stefano, *supra* note 11, at 31-35.

¹⁴² On the difference between formal legal truth and substantive truth, *see* Summers, *supra* note 42, at 497-501.

¹⁴³ *Id.* at 506.

¹⁴⁴ Walton, *supra* note 41, at 85 ff. There is a connection between presumptions and burden of proof, because, when a presumption of a certain fact is put forward by a proponent, then the respondent must accept this proposition, unless this can be rebutted. In other words, the proponent is relieved from the burden of producing evidence of the alleged fact he had to prove, *Id.* at 276.

unexplainable or incomprehensible algorithms to manage his workforce, in order to avoid bearing additional legal, managerial, and reputational costs. As a result, switching the burden of proof to the employer or setting a presumption in favour of an employee constitute legal tools disincentivising entrepreneurs from using opaque algorithms even without the need of opening the black box, because they allocate on the employer the risk of technical unexplainability or incomprehensibility of the decisions taken by an algorithm.

On the other, information and access rights, as well as those granting employment judges with broad powers to gather evidence *ex officio*, are characterized by an epistemic function, because they are all means directly aimed at pursuing the search for the substantive truth.¹⁴⁵ These rules also foster algorithmic transparency, both before and within a trial. Information and access rights can be enforced by workers and powers to gather evidence can be exercised *ex officio* by judges, thus reducing or even resetting the information asymmetries created by the use of algorithmic management devices, and giving the chance to an employee to effectively prove in a trial the facts at the basis of his claim. Therefore, a rational employer would be perfectly conscious that he would not be able to effectively defend himself in trial if he tries to hide violations of employment laws behind algorithmic opacities, which would hinder workers to be aware of or prove facts that they cannot know or cannot demonstrate because they are far from the source of the evidence. As a result, a rational employer, in order to avoid additional costs, would be incentivized to implement only those algorithmic devices that can be made transparent and whose functioning is not biased or even discriminatory. In other words, these legal techniques may constitute the picklock to open the black boxes of algorithmic management devices that would otherwise remain indecipherable to workers: obviously, with the exception of those technically impenetrable to human minds.

In conclusion, this analysis has shown that, notwithstanding their apparently conflicting functions, the described epistemic and anti-epistemic rules constitute effective regulatory antibodies against the issues created by the use of algorithmic management devices in the workplace. Legal systems, above all in the EU, already know how to foster transparency, and this would be instrumental to uncover violations of employment laws, thus limiting abuses of employers' managerial prerogatives. Therefore, a rethinking of employment laws as they are today does not really seem necessary. Nevertheless, if they need a fitness check in light of the always more massive use of algorithmic management devices, recurring more often to the regulatory antibodies described in this article can constitute an effective policy recommendation to better face the challenges posed by the algorithmic revolution.

¹⁴⁵ With exclusive reference to powers to obtain evidence *ex officio*, Taruffo, *supra* note 44, at 178-179.