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Indice

The impact of Artificial Intelligence systems on vulnerable workers: bridging anti-discrimination directives and the AI Act

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Abstract: *The article analyses the impact of artificial intelligence systems on workers at risk of discrimination in the EU labour market. It explores how anti-discrimination directives and the AI Act interact within a multi-level and risk-based framework to prevent and remedy discriminatory outcomes produced by AI systems. Particular attention is placed on equality bodies, whose strengthened functions and powers position them as key institutional actors bridging the traditional anti-discrimination framework and the emerging governance of high-risk AI systems.*

Keywords: Algorithmic discrimination – *AI Act* – Equality bodies – Non-discrimination – Risk-based approach

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1. Introduction

Over the last decades, digitalisation has evolved, coming up with incredibly complex and sophisticated systems capable of processing data, information and inputs for a wide range of purposes. While few sectors remain untouched by this transformation, many are the areas where digitalisation has spread and this contribution focuses specifically on the development and application of artificial intelligence (AI) – and in particular of algorithmic systems – in the field of employment, with the aim of identifying both the opportunities and the challenges related to the protection of the rights of those who are still considered vulnerable within the labour market.

For the purposes of this contribution, the expression "vulnerable workers" refers to individuals who experience significant difficulties and disadvantages in entering and remaining in the labour market due to one or more personal characteristics that distinguish them from the majority – and expose them to a constant risk of discrimination – in terms of gender, ethnic origin, race, religion, disability, age, sexual orientation, or nationality[1]. The barriers encountered by these individuals may potentially be either worsened or eased by the new organisation of work activities stemming from the development of new technologies. Therefore, the introduction of new technologies and AI systems in the workplace make it necessary to analyse how employment has changed, both from the organisational point of view of production and from the point of view of workers management. The starting hypothesis is that, as the context of the application of the norm changes and the needs of the individuals in the categories under analysis change, the norms themselves can and must also evolve to meet the new challenges of inclusion.

In particular, the contribution focuses on the impact of AI systems on workers at risk of discrimination and the changes that have occurred in the legal framework in this regard. First, an assessment is made on the potential application of the "classic" EU anti-discrimination law for the protection of those individuals facing new forms of discrimination which arise from the use of AI. Secondly, we will briefly analyse the approach adopted by EU institutions as far as the protection against discrimination is concerned within the legal framework regulating artificial intelligence, and precisely the recently adopted *AI Act* (Regulation (EU) no. 2024/1689[2]). As a whole, the fight against discrimination must be conducted transversally across multiple spheres that characterise the active participation of vulnerable individuals in society. To this end, the last section of the article is dedicated

[1] The triggering factors underlying the form of vulnerability examined in this contribution are those expressly identified and regulated within the European anti-discrimination legislation.

[2] Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act).

to the analysis of the potential involvement of a series of actors – among which equality bodies – which can prove to be fundamental in guaranteeing the protection of the right to non-discrimination even in the face of the new challenges of inclusion posed by the use of new technologies in the world of work.

2. The dissemination of AI systems in employment and their impact on workers at risk of discrimination

Before proceeding with the analysis of the legal framework, it looks necessary to briefly investigate the dissemination, development and implementation of AI systems in the employment context, focusing on the effects exercised by these instruments on vulnerable workers at risk of discrimination.

First and foremost, AI technologies can assume different forms and serve multiple functions in the employment context, even if it is still possible to identify the most common and principal areas of their application. For instance, when employed in recruitment processes, these systems allow the automatization, simplification and efficiency of the selection process' multiple phases, including the management and assessment of applications, and material support during interviews through the provision of specific steps to be taken through AI systems. Likewise, these technologies are increasingly used for human resources management and the organisation of the working activity. In this regard, multiple examples show their implementation for the assignment of tasks to workers, to define working schedules, as well as monitor and evaluate working performance, up to influence the decision-making process regarding the recognition of promotions or the determination of remuneration[3]. Furthermore, algorithmic management tools are increasingly used for the exercise of typical employers' powers, such as direction, control and disciplinary authority.

The integration of AI systems in the workplace represents for sure a complex phenomenon, presenting both promising opportunities and significant risks[4]. As for the potentialities, multiple sources underline the ability of these technologies in determining an increase in productivity and promote the automation of repetitive and standardised tasks. Further benefits can be traced back to the possibility to personalise the services provided to clients, the emergence of new working opportunities, and the improvement of the individu-

[3] Malorny, Rieger, *AI-driven recruiting: A consideration on data protection and anti-discrimination law*, in Menegatti (ed.), *Law, Technology and Labour*, Italian Labour Law e-Studies, Bologna University Press, 2023, 142 ff.; Organisation for Economic Co-operation and Development (OECD), *Using AI in the workplace. Risks and policy responses*, OECD Artificial Intelligence Papers, 11, March 2024, 3-5.

[4] On the topic, Organisation for Economic Co-operation and Development (OECD), *AI and Work*, available at https://www.oecd.org/en/topics/ai-and-work.html; Milanez, *The impact of AI on the workplace: evidence from OECD case studies of AI implementation*, OECD Social, Employment and Migration WP, 2023, 289.

als' working experience, linked to the possibility to increase and develop new skills and abilities[5]. The introduction of such systems also contributes to improving workers' safety through, for example, reducing direct interaction with hazardous machinery, adopting monitoring tools aimed at preventing risks and assessing working and fatigue conditions, as well as through predictive maintenance of systems and the automation of demanding tasks. Lastly, AI systems can ensure smoother processes and greater efficiency in decision-making and management processes that require the elaboration of a large amount of data, with the effect of making them more reliable, also in the perspective of contributing to more inclusive and accessible workplaces.

From this point of view, scholars have acknowledged the potential of artificial intelligence to mitigate certain forms of discrimination in the workplace, especially by reducing human bias that influence decision-making processes, improving traceability and transparency of decisions, and enabling the detection of historically developed patterns of unequal treatment. These characteristics favour and, consequently, enable prevention and repression of discriminations[6]. As regards the procedural dimension, we are witnessing a progressive dissemination of instruments conceived and programmed following the principles of *equality-by-design* and *design justice*[7], aimed at promoting equity and inclusion in processes mediated by digital technologies, by favouring the prevention of unequal treatment and ensuring that systems placed on the market no longer entail unacceptable risks[8]. Among the most significant interventions, it is possible to recognise the anonymisation of selection procedures and blind screening to erase personal data susceptible of generating prejudices in the evaluation of applicants, as well as selection procedures models based exclusively on performances, assessed through specific exams, thus avoiding the mere evaluation of *curricula*. Furthermore, technologies are growing to ensure the use of

[5] Some studies conducted by the OECD reveal that a part of workers express optimism regarding the introduction of AI systems into their professional activities. In particular, they report perceiving benefits related, for instance, to an improvement in the substantive content of their tasks, to greater engagement in the performance of work – also due to their willingness to learn how to use such systems – as well as to the support that AI can provide in carrying out their job duties.

[6] Topo, *Nuove tecnologie e discriminazioni*, in *Diritto antidiscriminatorio e trasformazioni del lavoro*, Relazione XXI Congresso Nazionale AIDLaSS, Messina, 23-25 May 2024, 26-30; Gaudio, *Le discriminazioni algoritmiche*, in *LDE*, 1, 2024, 13-16; Hacker, *Teaching fairness to artificial intelligence: existing and novel strategies against algorithmic discrimination under EU law*, in *Common Market Law Review*, 55, 2018, 1146-1150.

[7] Yarger, Payton, Neupane, *Algorithmic equity in the hiring of underrepresented IT job candidates*, in *Online Information Review*, 2020, 386. *Design justice* – as indicated by the A. – is a theory developed from a feminist perspective by Costanza Chock in 2018, offering a conceptual framework that requires AI system designers to adhere to ethical models of fairness and equality in the design process. By doing so, it ensures that the technical functionality of these tools is aligned also with the ethical and legal dimensions of fundamental rights.

[8] Ceross, *Explaining 'by-desing' approaches: principles and implementation*, Equinet publication, 2025, 6-10. The A. identifies as indicators of fair and accountable systems: the conduction of *ex ante* risk assessments; transparency ensured through structured documentation and bias mitigation measures; public accountability and explainability; effective feedback and redress mechanisms capable of producing substantive corrective outcomes; and proactive bias mitigation combined with continuous monitoring. Tarafdar, Rets, Hu, *Can ICT enhance workplace inclusion? ICT-enabled workplace inclusion practices and a new agenda for inclusion research in Information Systems*, in *Journal of Strategic Information Systems*, 32, 2023, 6-14; Yarger, Payton, Neupane, op. cit., 386-391.

inclusive language at all stages of the employment relationship and to promote corporate organisational structures sensitive to the valorisation of diversity. Finally, a further area of development concerns initiatives aimed at supporting vulnerable workers, implemented through the use of artificial intelligence tools and other technologies specifically designed for this purpose. In this regard, multiple experiences in the area of assistive technologies intended for workers with disabilities are emblematic: these tools, in fact, are designed with the aim of expanding the functional autonomy of people with disabilities and encouraging their active participation in work processes[9].

On the other hand, risks related to the introduction of AI systems in the workplace – often specular to the benefits just mentioned – still constitute what most attracts the attention of the doctrine and the legislator[10]. Firstly, many concerns developed about the consequences of the automation of many jobs, increasing the risk for unemployment and job displacement for a big percentage of the workforce[11]. Similarly, many workers may also experience difficulties due to skills obsolescence and face barriers to accessing specialised vocational training[12]. Not only that, but other difficulties can also be traced under the health and safety spectrum, given that the implementation of AI systems in the workplace can trigger new risks for workers, affecting both their degree of autonomy and their dignity. Lastly, accessibility and capability of using such systems cannot be underestimated, as they potentially widen existing disparities among workers. Such dynamics may have consequences not only in respect to substantive equality in the workplace, but also in terms of labour market balance, with serious repercussions on business competition and national cohesion. Moreover, in relation to the impact of AI systems on vulnerable categories of workers, some of the main features of the most complex algorithms – such as lack of transparency, scarce explainability and limited accountability – exacerbate the fear that these technologies may reinforce inequalities and perpetuate prejudice and discriminations.

[9] On the topic, European Parliamentary Research Service, *Assistive technologies for people with disabilities*, Scientific Foresight Unit (STOA), PE 603.218, 2018; Spinelli, *Inclusive digital workplaces for persons with disabilities*, in Menegatti (ed.), op. cit., 223-231. These technologies include, for example: automatic *captioning* systems and voice-based search tools for individuals with visual or hearing disabilities; interfaces capable of translating brain signals or bodily movements into digital commands; *bot-based* services designed to provide platforms for reporting architectural barriers or identifying accessible routes and services.

[10] Organisation for Economic Co-operation and Development (OECD), *Using AI in the workplace*, cit., 5-13.

[11] Organisation for Economic Co-operation and Development (OECD), *ibidem*, refers to the risk of *job displacement* associated with the widespread diffusion of artificial intelligence tools.

[12] Among the workers most exposed to the risk of skill obsolescence are older employees. Moreover, it is possible to identify the specific phenomenon of "*deskilling*", linked to the de-qualification of workers whose tasks are gradually automated.

3. Algorithmic discriminations: what protection under the European regulatory framework?

Before proceeding with the examination of the European legal mechanisms designed to combat algorithmic discrimination, it seems necessary to identify the main characteristics of algorithmic systems and the factors determining a real risk of disadvantage for workers in this area[13]. Modern algorithmic technologies are commonly based on two main types of algorithms: rule-based (or logic-based) algorithms and machine learning algorithms. Understanding the principal distinctions between these two is pivotal in order to proceed with the analysis of their impact on vulnerable workers and for assessing how legal frameworks can offer protection to those who are facing risks of discriminations and algorithmic bias. On the one hand, rule-based algorithms operate following fixed logical set of instructions, guided by a determinist method. On the other hand, machine learning algorithms are dynamic, they feed their "minds" with data and produce outcomes based on statistical and probabilistic methods. Most of the times, humans advance complex requests to algorithms, and they respond by transforming "qualitative" inputs into "quantitative" outputs[14]. As for the factors determining a real risk of disadvantage connected to the use of algorithms, the first variable to consider is human intervention, which plays a pivotal role both in the programming of logic-based algorithms and in the development of machine learning systems. In the latter case, the most significant critical issues arise in relation to the selection of the datasets for training, the subsequent management and interpretation of the results produced, and the integration of feedback collected on the functioning of the system. The second variable concerns the accuracy and representativeness of the datasets employed by the algorithm[15]: incomplete, distorted or incorrect information can negatively affect both algorithmic models, although the discriminatory impact is significantly higher in machine learning systems which – due to their "self-taught" nature – can replicate and amplify existing inequalities. To ensure comprehensive equality, it is therefore essential that algorithms are trained on extensive and inclusive datasets that accurately reflect the full spectrum of diversity present within our societies[16]. The third and last variable to be considered relates to *proxies*, described as *«a seemingly neutral piece of information that is nevertheless strongly related to a protected characteristic»*[17]: we find ourselves facing

[13] Gaudio, *ibidem*, 5-8.

[14] Topo, op. cit., 18. About the difference between the two types of algorithms: Gaudio, op. cit., 5-8; Malorny, Rieger, op. cit., 142-143; Peruzzi, *La discriminazione algoritmica*, in *EQUAL*, 1, 2024, 8-10; Ceross, *Understanding Artificial Intelligence: Concepts, Limitations, and Risks*, Equinet Publication, 2025, 4-8.

[15] Hacker, op. cit., 1143-1150.

[16] Topo, op. cit., 25-26. The A. states that "*If one adopts the perspective of anti-discrimination law, which aims to build an egalitarian society, it becomes necessary to employ highly granular algorithms capable of capturing diversity*" (my translation).

[17] European Union Agency for Fundamental Rights (FRA), *Bias in Algorithms – Artificial Intelligence and Discrimination*, Vien, 2022, 24. On the topic, also Mittelstadt, *How to use the Artificial Intelligence Act to investigate AI bias and discrimina-*

a particularly insidious phenomenon, mainly due to its unpredictability and its difficult detectability, which makes it challenging to limit it with technical means. In this context, it is essential to adopt an integrated approach to the issue, including rigorous regulatory standards.

The supranational legal framework aimed at regulating artificial intelligence systems, with particular regard to the issue of algorithmic discrimination, is constantly evolving. Currently, in the absence of comprehensive unified regulation on the subject, the European legal system adopts a multi-level approach based on the integration of multiple legal sources. The most robust legal protection therefore derives from the coordinated application of legal instruments not originally designed to address the challenges posed by artificial intelligence, such as the European directives on equality and non-discrimination (dir. 2000/43/EC, dir. 2000/78/EC and dir. 2006/54/EC), and Regulation (EU) 2016/679 on the protection of personal data (*General Data Protection Regulation – GDPR*)[18]. These rules, now firmly established in the supranational legal framework, are complemented by more recent regulatory measures, such as Regulation (EU) 2024/1689 on harmonised rules on artificial intelligence (*AI Act*) and dir. 2024/2831/EU on improving working conditions for platform workers[19]. Taken together, these sources outline an evolving system of protections, within which the principle of equality and non-discrimination is progressively adapted and strengthened in response to the new challenges introduced by the technological revolution.

In the following sub-sections, particular attention will be devoted to examining the legal instruments above mentioned.

3.1. From EU anti-discrimination law...

Understanding the use of anti-discrimination law as a regulatory instrument for the protection of vulnerable groups in the era of technological transitions becomes easier when one refers to the functions that this branch of European Union law has come to perform within European societies and labour markets as a result of an intense process of dynamic development[20]. From this perspective, anti-discrimination legislation has come to complement its more traditional functions – such as delimiting the power and decision-making discretion of public and private actors and fostering processes of political participation for the benefit of groups that are commonly underrepresented and inactive[21] – with new

tion: a guide for Equality Bodies, Equinet publication, 2024, 41-42; Ceross, *Explaining 'by-desing' approaches*, cit., 14-16.

[18] Regulation (EU) 2016/679 of the 27 April 2016 *on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).*

[19] Directive (EU) 2024/2831 of the European Parliament and of the Council of 23 October 2024 on improving working conditions in platform work.

[20] De Vos, *The European Court of Justice and the march towards substantive equality in European Union anti-discrimination law*, in *International Journal of Discrimination and the Law*, 20, 1, 2020.

[21] Caruso, Del Punta, Treu, *Manifesto per un diritto del lavoro sostenibile*, in *WP D'Antona, It.*, 2020, 40-43; Barbera, *Egua-*

missions aimed at compensating for structural disadvantages and pursuing redistribution in line with the principle of substantive equality[22]. Furthermore, anti-discrimination law has been enriched with a political function[23] over time, identifiable in the activity of detecting legislative provisions that, although apparently neutral, in practice disadvantage a specific group of vulnerable individuals. From this perspective, the latest generation of anti-discrimination law appears well equipped and conceptually developed to identify the structural inequalities affecting specific segments of the population and to counter them through "denaturalising interventions"[24] aimed at eliminating the unfavourable treatment embedded in the very foundations of the collective order. To this end, the diagnostic function exercised during the discrimination judgment is equally essential, as it aims to identify causal links – sometimes imperceptible – that give rise to unlawful unfavourable treatments[25]. Finally, it must be acknowledged that anti-discrimination legislation has developed prohibitions of discrimination with a view to safeguarding individual rights and human dignity that characterise all people, regardless of the differences among them[26].
The range of functions described above was the result of a development process that lasted decades within the European Union scenario[27]. Nowadays, the legal framework governing the application of anti-discrimination protection and the principle of equality appears rather fragmented. A series of directives[28] regulate the implementation of such protection based both on the classification of protected grounds of discrimination and on

glianza e differenze nella nuova stagione del diritto antidiscriminatorio comunitario, in *Studi in onore di Giorgio Ghezzi - Volume I*, Cedam, 2005, 231-234; Ballestrero, *Riflessioni in tema di eguaglianza e discriminazioni*, in *Studi in onore di Giorgio Ghezzi*, cit., 136-139.

22 Barbera, Borelli, *Principio di eguaglianza e divieti di discriminazione*, in *WP D'Antona, It.*, 451, 2022, 3-7.

23 Barbera, Borelli, *ibidem*, 20-24.

24 Ballestrero, op. cit., 137. The A., in this sense, speaks of the denaturalisation of social categories.

25 Barbera, *Il cavallo e l'asino. Ovvero dalla tecnica della norma inderogabile alla tecnica discriminatoria*, in Bonardi, *Eguaglianza e divieti di discriminazione nell'era del diritto del lavoro inderogabile*, Ediesse, 2017, 20-28.

26 Barbera, *Eguaglianza e differenze*, cit., 231-234.

27 From a legal standpoint, a pivotal shift in the orientation of European anti-discrimination law occurred with the adoption of the Treaty of Amsterdam at the dawn of the 2000s. At that time, the European institutions were entrusted with the competence to take action against discrimination based on a range of both ascribed and voluntary characteristics that define each individual, as established by Article 13 of the EC Treaty (now Article 19 TFEU). These competences were further reinforced by the inclusion of equality and non-discrimination among the core values guiding the European Union's actions, alongside the recognition of the cross-cutting nature of the prohibition of discrimination across all areas of EU intervention, as expressed in Articles 8 and 10 TFEU. Moreover, with the proclamation of the Charter of Fundamental Rights of the European Union, and its subsequent elevation to primary law status through the Treaty of Lisbon, Article 21 of the Charter, concerning the right to non-discrimination, was endowed with both horizontal and vertical direct effect.

28 Council Directive 2000/43/EC of 29 June 2000 implementing the principle of equal treatment between persons irrespective of racial or ethnic origin; Council Directive 2000/78/EC of 27 November 2000 establishing a general framework for equal treatment in employment and occupation; Directive 2006/54/EC of the European Parliament and of the Council of 5 July 2006 on the implementation of the principle of equal opportunities and equal treatment of men and women in matters of employment and occupation (recast); Directive 2010/41/EU of the European Parliament and of the Council of 7 July 2010 on the application of the principle of equal treatment between men and women engaged in an activity in a self-employed capacity and repealing Council Directive 86/613/EEC.

the specific scope of application of the relevant safeguards. Legally speaking, discrimination is broadly understood as any act or legal provision that results in a disadvantage based on one or more personal characteristics of an individual. The ongoing evolution of anti-discrimination law has contributed to the increasing fluidity of the concept itself, progressively encompassing a broader range of behaviours and situations not explicitly addressed by the legislation[29]. The identification of grounds of discrimination, also referred to as protected characteristics or "socially salient traits", has been essential to understanding the scope within which anti-discrimination law operates, namely the specific societal context in which it is applied. In this regard, the process of determining which characteristics warrant protection can only be carried out through a careful analysis of the socio-economic and political context. It is within this framework that one can identify patterns of disadvantage affecting certain individuals, whether due to their belonging to a minority group, their historical experience of exploitation, or their current marginalisation, which may also stem from exclusion from the regulatory processes of society[30].

The framework that European institutions have progressively developed and strengthened in the field of equality and non-discrimination is being called into question by artificial intelligence systems and by the phenomenon of algorithmic discrimination: the stability and predictability of the criteria used in decision-making processes are replaced by classificatory and decisional mechanisms that are at times unknown and not always directly traceable to the factors traditionally afforded protection; similarly, transparency – an element that already constitutes a significant obstacle for victims of discriminatory decisions in the employment relationship – becomes even more difficult to ensure; finally, the causal link that underpins anti-discrimination protection appears to be undermined, given the conditions of extreme opacity in which algorithmic decision-making processes are developed[31]. In light of these considerations, it appears necessary to examine how algorithmic discrimination may be encompassed within the framework of "traditional" anti-discrimination law, beginning with an analysis of how such forms of discrimination fit within the various concepts of discrimination recognized therein[32]. Each of these notions entails a

[29] Voza, *Eguaglianza e discriminazioni nel diritto del lavoro. Un profilo teorico*, Relazione del XXI Congresso nazionale AIDLaSS su *"Diritto antidiscriminatorio e trasformazioni del lavoro"*, Messina, 23-25 maggio 2024, 23.

[30] Consiglio, *Discriminazione, diritti e vulnerabilità tra teoria e pratica*, in Gioffredi, Lorubbio, Pisanò (eds.), *Diritti umani in crisi? Emergenze, disuguaglianze, esclusioni*, Pacini Giuridica, 2021, 32-35; Voza, op. cit., 23-24; Marino, *Il diritto antidiscriminatorio nella giurisprudenza delle Corti,* in *LD*, 2, 2021, 23-24.

[31] Wachter, *The theory of artificial immutability: protecting algorithmic groups under anti-discrimination law*, in *Tulane Law Review*, 97, 2, 2022, 42-48.

[32] About the different concepts of *direct* and *indirect* discrimination linked to algorithmic discriminations: Topo, op. cit., 12-15; Gaudio, op. cit., 8-13; Weerts, Xenidis, Tarissan, Palmer Olsem, Pechenizkiy, *Algorithmic Unfairness through the Lens of EU Non-Discrimination Law. Or why the Law is not a Decision Tree*, in *FAccT '23: Proceedings of the 2023 ACM Conference on Fairness, Accountability, and Transparency*, 2023, 806-811; Malorny, Rieger, op. cit., 148-154; Barbera, *Discriminazioni algoritmiche e forme di discriminazione*, in *LLI*, 7, 1, 2021, 15-17; Hacker, op. cit., 1151-1154; Gerards, Xenidis, *Algorithmic discrimination in Europe. Challenges and opportunities for gender equality and non-discrimination law*, European Commission – Directorate-General for Justice and Consumers, 2020, 67-73; Xenidis, *Algorithmic neutrality vs neutralising dis-*

different set of safeguards as defined by the European legislator, especially in cases that are brought before the courts. The first concept of discrimination outlined in the equality directives is that of *direct discrimination*, which occurs when an individual is treated less favourably than another in a comparable situation due to a protected characteristic. In the context of algorithmically generated unequal treatment, direct discrimination is less frequently encountered, as it typically requires the explicit use of a protected factor as an input in determining the outcome. Nevertheless, direct discrimination may still occur where a machine learning system employs a proxy that is inextricably or statistically linked to a protected characteristic, as typical in direct discrimination[33]. By contrast, *indirect discrimination* arises when a provision, criterion or practice that appears neutral results in a particular disadvantage for individuals belonging to a protected group compared to others. A key distinction between direct and indirect discrimination lies in the fact that the latter may be objectively justified, provided it pursues a legitimate aim and the means used to achieve it are appropriate and necessary. In the algorithmic discrimination domain, the notion of indirect discrimination is particularly important. In fact, it occurs with greater frequency, given that it often arises from the establishment of statistical correlations between protected factors and specific negative outcomes that are not immediately recognisable, as in cases where machine learning systems are involved, characterised by a high degree of opacity. In such circumstances, apparently neutral criteria may produce disproportionately unfavourable conditions for the members of a protected group, thus determining adverse effects relevant for anti-discrimination law[34]. The perspective of indirect discrimination makes it possible, when algorithmic discrimination occurs, to focus on the concrete effects of a conduct rather than on the intention behind it or the awareness of employers and AI designers. Sometimes, it is thus possible to even reveal historical patterns of inequality embedded within datasets used to train algorithms, causing the unconscious replication of pre-existing disparities within new processes[35].

Substantially, both the legal protection afforded to victims of discrimination and the effectiveness of the anti-discrimination protection – understood in terms of its continuous

criminatory algorithms: for a paradigm shift in EU anti-discrimination law, in *LD*, 4, 2022, 766-768. Santagata de Castro, *Anti-discrimination Law in the Italian Courts: the new frontiers of the topic in the age of algorithms*, in *WP D'Antona, It*., 440, 2021, 31-32, suggests caution in the excessive use of *indirect discrimination* in cases of algorithmic discriminations, given the broad scope of justification linked to this legal concept.

33 Regarding indirect discrimination caused by *proxies*, Gaudio, op. cit., 11-13; De Petris, *La discriminazione algoritmica. Presupposti e rimedi*, in Biasi (ed.), *Diritto del lavoro e intelligenza artificiale*, Giuffrè, 2024, 234; Xenidis, *Tuning EU equality law to algorithmic discrimination: Three pathways to resilience*, in *Maastricht Journal of European and Comparative Law*, 27, 6, 2020, 745-751.

34 Gerards, Xenidis, op. cit., 76. The Authors state that: «given that it might be increasingly difficult to identify differential treatment based on protected grounds in the context of algorithmic operations, the notion of indirect discrimination might become a conceptual 'refuge' to capture the discriminatory wrongs of algorithms. However, such a trend might increase legal uncertainty given the open-endedness of the objective justification test applicable in this case».

35 Peruzzi, *Il diritto antidiscriminatorio al test di intelligenza artificiale*, in *LLI*, 7, 1, 2021, 57-62; Santagata de Castro, op. cit., 18-24; Xenidis, *Algorithmic neutrality*, cit., 766-768.

updating and expansion – have been considerably shaped over time by the interpretations that judges across different jurisdictions have provided of the relevant norms in discrimination proceedings[36]. In this regard, EU law dedicates a number of provisions to the legal protection of victims in each of the three equality directives: articles 7, 8 and 9 of dir. 2000/43/EC; articles 9, 10 and 11 of dir. 2000/78/EC; and articles 17, 18 and 19 of dir. 2006/54/EC[37].

Specifically, victims of discrimination are entitled to access judicial and/or administrative procedures, as well as conciliation mechanisms, whenever they consider themselves harmed by unfavourable treatment based on a protected ground. Discrimination proceedings are commonly described as a *complaints-based* form of protection, that is, based on recourse to court by individual victims, in the general perspective of an *individual rights approach*[38]. Within the litigation, it is for the claimant to prove that they have been subjected to less favourable treatment on the basis of a protected ground. Even in the context of traditional employment relationships, which do not involve the use of artificial intelligence tools, this task may prove particularly complex for the person who considers themselves discriminated against, due to the lack of transparency that prevents them from reliably comparing the treatment they have received with, for instance, that afforded to other workers[39]. In this context, the special evidentiary mechanism provided for in discrimination proceedings assumes particular relevance: it entails a mitigation of the burden of proof placed on the claimant, in a way that even a mere presumption of discrimination – which may also be demonstrated through the use of statistical data[40] – is sufficient to shift the burden of proof onto the respondent. Once this preliminary threshold is met, the burden shifts to the respondent, usually the employer, to demonstrate that no violation occurred. In cases of direct discrimination, the respondent must prove the absence of less favourable treatment. In the context of indirect discrimination, the respondent must establish that the contested measure pursues a legitimate aim and that the means employed are appropriate and necessary. Therefore, within the framework of EU anti-discrimination law, the partial shifting of the burden of proof plays a pivotal role, also in relation to automated decision-making processes driven by artificial intelligence. In cases of algorithmic discrimination,

[36] Recital (30) of dir. 2000/78/EC states that: «*the effective implementation of the principle of equality requires adequate judicial protection against victimisation*».

[37] In detail: art. 7 (“*Defence of rights”)*, 8 (*“Burden of proof”)* and 9 (*“Victimisation”)* of dir. 2000/43/EC; art. 9 (“*Defence of rights”)*, art. 10 (*“Burden of proof”)* and art. 11 (*“Victimisation”)* of dir. 2000/78/EC; and art. 17 (“*Defence of rights”)*, art. 18 (*“Compensation or reparation”)* and art. 19 (*“Burden of proof”)* of dir. 2006/54/EC.

[38] Bello, *Un anniversario da festeggiare? Riflessioni sociologico-giuridiche sulle disposizioni antidiscriminatorie dell'Unione europea a vent'anni dalla loro emanazione,* in *DPCE online*, 2, 2020, 1081-1089.

[39] Bonardi, Meraviglia, *Dati statistici e onere della prova nel diritto antidiscriminatorio*, in Bonardi, op.cit., 357-364.

[40] Barbera, *Eguaglianza e differenze*, cit., 241-245. The Author refers to the “objectification” of the discrimination judgment through the introduction of the possibility to use statistical data as evidence of less favourable treatment. According to the Author, this approach acknowledges that the impact and nature of discrimination are not merely individual but also collective.

the correct application of this scheme constitutes a crucial safeguard against the risks posed by both the opacity and the potential inherent biases behind the processes of AI systems[41]. In this context, the primary difficulty for claimants lies in the inherent opacity of such systems: the "black box" nature of machine learning makes it extremely difficult for individuals not only to identify the occurrence of discrimination but also to understand its causes. In the absence of a reversal mechanism, the claimant's legal position would be, in practice, virtually inaccessible. This serves not only to redress procedural imbalances but also as an incentive for transparency[42]. By placing the burden on the employer to account for the opacity of algorithmic decisions, the legal system encourages the adoption of intelligible technologies, capable of enabling a prior assessment of whether discriminatory outcomes are likely to occur.

3.2. ... to the AI Act (Reg. EU 2024/1689)

As previously noted, EU normative instruments available in this domain are not limited to anti-discrimination law. Before focusing on the analysis of the safeguards deriving from the *AI Act*, it appears necessary to recall some of the *GDPR* provisions that, although not originally conceived to counter algorithmic discrimination, play a pivotal role in mitigating this phenomenon, as recognised by a well-established body of scholarship[43]. This Regulation has represented, among other things, a first articulation of the risk-based approach that has been subsequently adopted as the foundation of the *AI Act*, although with partially different characteristics – for example, a *bottom-up* logic that places responsibility on the data controller to manage potential harms, as opposed to the *top-down* approach favoured within the *AI Act*[44].

The GDPR introduces a series of general principles that are also relevant from an anti-discrimination perspective. These include the principles of lawfulness, fairness and trans-

[41] On the pivotal role of the partial relief of the burden of proof: Gaudio, op. cit., 19-22; Weerts, Xenidis, Tarissan, Palmer Olsem, Pechenizkiy, op. cit., 808-811; Malorny, Rieger, op. cit., 148-154; Hacker, op. cit., 1167-1171; Santagata de Castro, op. cit., 18-24; Mittelstadt, op. cit., 37-38.

[42] The judgments of the CJEU in *Danfoss* and *Meister* are fundamental in addressing algorithmic discrimination, as they established key principles regarding transparency and the burden of proof. In *Danfoss* (Case C-109/88, 1989), the Court held that opaque systems must be made transparent, and it eased the burden of proof for claimants in cases where decision-making criteria lack transparency. The *Meister* judgment (Case C-415/10, 2012) reinforced this principle by stating that a defendant's refusal to disclose relevant information may be considered an indication of discrimination. These principles act as regulatory instruments also against algorithmic opacity, suggesting that the use of inscrutable algorithms may justify a shift of the burden of proof to the employer. On the topic, Gaudio, op. cit., 22, Peruzzi, *La discriminazione algoritmica*, cit., 18; Barbera, op. cit., 9; Topo, op. cit., 53; Hacker, op. cit., 1168-1169; Weerts, Xenidis, Tarissan, Palmer Olsem, Pechenizkiy, *ibidem*, 809.

[43] On the topic, *ex multis:* Hacker, op. cit., 1170-1183; Gaudio, op. cit., 2024, 16-20; Malorny, Rieger, op. cit., 144-148; Peruzzi, *La discriminazione algoritmica*, cit., 2024, 13-15; Topo, op. cit., 41-44.

[44] On the topic, Zappalà, *Sistemi di IA ad alto rischio e ruolo del sindacato alla prova del risk-based approach*, in *LLI*, 10, 1, 2024, 56-60. The A. defines the risk-based approach of the AI Act as top-down because it is the legislator itself that, having conducted a preliminary risk assessment, subsequently determined the high-risk categories and identified the key requirements for the reliability of AI systems and the risks they entail.

parency governing the processing of personal data, together with the requirement of data accuracy, all of which have the potential to prevent the use of distorted data that may cause discriminatory treatments[45]. Particularly significant is the requirement of a specific prior assessment aimed at examining the impact on data protection: the *Data Protection Impact Assessment* (*DPIA)*[46] must be conducted whenever a processing activity – especially one based on new technologies – may entail high risks for individual rights and freedoms, including the right to non-discrimination. Similarly, art. 22 ("*Automated individual decision-making, including profiling*") strongly limits decisions based only on automated processing that are capable of producing legal effects on individuals. In this regard, a right to obtain human intervention is recognised for those interested by the process, as well as the ability to «express his or her point of view and to contest the decision»[47]. Finally, the GDPR promotes transparency by granting data subjects the possibility to obtain information about the logic underlying the automated processing of their personal data and the characteristics of the processing-system in question[48]. Taken together, this framework appears to be a regulatory system that, although not addressing the phenomenon of algorithmic discrimination in an exclusive or direct manner, provides substantive and procedural safeguards capable of mitigating its effects.

We now turn our attention to the regulatory framework established by the European legislator for artificial intelligence systems under the AI Act, focusing in particular on the provisions aimed at countering algorithmic discrimination in the employment context[49]. First and foremost, this Regulation aims to contribute to the «design of coherent, trustworthy and human-centric artificial intelligence»[50], emphasising the complementarity between its provisions and the existing body of norms, including anti-discrimination law. The Regulation applies a risk-based approach, classifying AI systems following the level of risk they pose to fundamental rights, security and the public interest[51]. At each level of risk corresponds a set of legal obligations to follow. In detail, four categories of risk are identified, namely: unacceptable risk (forbidden); high-risk systems (allowed, but subject to strict compliance obligations); limited risk; and minimal risk. The overall risk-based ap-

45 Regulation (EU) 2016/679, art. 5, par. 1, letters *a)* e *d)*.

46 Regulation (EU) 2016/679, art. 35.

47 De Petris, op. cit., 242 ff.; Peruzzi, *Il diritto antidiscriminatorio al test…*, cit., 62-65; Falletti, *Algoritmi: la discriminazione non è uguale per tutti*, in *LDE*, 2, 2023, 7-8.

48 Regulation (EU) 2016/679, art. 15, par. 1, letter *h)*. Peruzzi, *ibidem*, 62-65; Parodi, *Discrimination in the Automated Targeting of Job Advertising: The role of the General Data Protection Regulation*, in *European Labour Law Journal*, 16, 1, 2024, 113-119.

49 This contribution does not examine in detail the provisions of the Platform Work Directive, in light of its limited scope of application.

50 Recital (27), *AI Act*.

51 Peruzzi, *La discriminazione algoritmica*, cit., 10-13; Topo, op. cit., 20-24, 30-35, 50-52.

proach seeks to prevent violations through the implementation of *ex ante* measures aimed at ensuring the traceability, verifiability and explainability of artificial intelligence systems. Those implemented in the field of employment are classified as "high-risk AI systems" and include technology used for the recruitment and management of workers[52]. As already mentioned, a comprehensive set of obligations are introduced for both providers and deployers (employers in our field) of high-risk AI systems[53]. Following articles 9 ("*Risk Management System*"), 10 ("*Data and Data Governance"*) and 17 ("*Quality Management System"*) of the Regulation[54], providers are required to implement proactive risk management processes, ensuring the quality and representativeness of training, validation and testing data, and enhancing the transparency of algorithmic decision-making. This includes assessing and mitigating bias[55], that is the «*systematic difference in treatment of certain objects, people or groups in comparison to others*», even through the exceptional processing of sensitive data if necessary and useful to identify and correct possible distortions. Furthermore, systems must be tested before the deployment, everything must be documented and constantly monitored and updated. Following art. 26 ("*Obligations of Deployers of High-Risk AI Systems*"), deployers of high-risk AI systems must be informed and well trained about the logic underlying the systems' functioning and they should be capable of interpreting and explaining the outputs obtained. Moreover, they must implement meaningful human oversight with actual authority to intervene in or override automated decisions. Besides, art. 27 ("*Fundamental Rights Impact Assessment for High-Risk AI Systems*") provides for the conduct of an assessment, prior to its first use, regarding the impact of such systems on fundamental rights: where risks to health, safety or fundamental rights

[52] Recital (57), *AI Act*: «AI systems used in employment, workers management and access to self-employment, in particular for the recruitment and selection of persons, for making decisions affecting terms of the work-related relationship, promotion and termination of work-related contractual relationships, for allocating tasks on the basis of individual behaviour, personal traits or characteristics and for monitoring or evaluation of persons in work-related contractual relationships, should also be classified as high-risk, since those systems may have an appreciable impact on future career prospects, livelihoods of those persons and workers' rights. Relevant work-related contractual relationships should, in a meaningful manner, involve employees and persons providing services through platforms as referred to in the Commission Work Programme 2021. Throughout the recruitment process and in the evaluation, promotion, or retention of persons in work-related contractual relationships, such systems may perpetuate historical patterns of discrimination, for example against women, certain age groups, persons with disabilities, or persons of certain racial or ethnic origins or sexual orientation. AI systems used to monitor the performance and behaviour of such persons may also undermine their fundamental rights to data protection and privacy».

[53] On the topic, Peruzzi, *La discriminazione algoritmica*, cit., 10-13; Malorny, Rieger, op. cit., 153-155; and Topo, op. cit., *ibidem*.

[54] Article 9, 10 and 17 of the *AI Act*. On the role of art. 10 as one of the provisions directed at ensuring *equality-by-design* within the *AI Act*, Ceross, *Explaining 'by-desing' approaches*, cit., 11-12; Mittelstadt, op. cit., 2024, 47-48; Zappalà, op. cit., 56-60.

[55] This is the definition of *bias* provided by ISO/IEC 24027 on *Information technology – Artificial intelligence (AI) – Bias in AI systems and AI aided decision making*. Mittelstadt, *ibidem*, 16-21, identifies several sources of unwanted bias, including: *human cognitive bias*, which occurs when humans process and interpret information; *data bias*, which often arises from technical design decisions and constraints and may be caused by human cognitive bias, the chosen training methodology and variations in training infrastructure; *engineering decisions bias*, namely biases embedded in machine learning model architectures, encompassing model specifications, parameters, and manually designed features.

are identified, they must be suspended. However, despite the significant relevance of the measure, this provision has a limited effect in counteracting the erosion of rights – such as the right to equal treatment and non-discrimination examined here – since employment has been excluded from the scope of its application[56]. Finally, the *AI Act* intervenes in the critical area of transparency, which is of pivotal importance when trying to demonstrate a discrimination, by introducing two interesting provisions: art. 77 ("*Powers of authorities protecting fundamental rights*") and art. 86 ("*Right to explanation of individual decision-making"*).

On the one hand, art. 77 states that national authorities or bodies supervising or enforcing the respect of fundamental rights, «*including the right to non-discrimination*», in relation to the use of high-risk AI systems referred to in Annex III can request and access the documentation produced under the *AI Act* whenever this is necessary for the effective exercise of their functions. In case the documentation produced and shared proves to be insufficient for the verifications, the authority or body may request that technical test be carried out on the high-risk system under scrutiny. Meaning that the provision guarantees both a *right to access* and a *right to testing* for authorised bodies[57]. On the other hand, art. 86 establishes that every affected person subject to a decision taken by the deployer based on the output deriving from a high-risk AI system – and having a judicial effect or negative consequences for his/her health, safety or fundamental rights – shall have the right to obtain from the deployer clear and meaningful explanations both regarding the role played by the AI system in the decision-making process and the main elements of the decision taken. Meaning that a *right to explanation* is guaranteed following this provision as well[58]. Which authorities or public bodies may exercise the functions established by Articles 77 and 86 of the *AI Act* is a question that allows us to complete the circle of the analysis conducted here, linking it to the provisions of the anti-discrimination legal framework previously examined, as will be discussed in the next section.

[56] On the limits of art. 27 *AI Act* in the field of employment: Mittelstadt, *ibidem*, 45-47; Zappalà, op. cit., 63-67. Both Authors identify a second key limitation: deployers may be exempt from conducting a FRIA if another actor has already carried out a similar assessment, including self-assessments by providers. As a result, even systems potentially qualifying as high-risk may avoid thorough scrutiny, significantly limiting the practical application of FRIAs. Furthermore, art. 27(4) introduces a cross-reference to the GDPR, providing that where the obligations set out are already fulfilled through a data protection impact assessment conducted under art. 35 GDPR, the fundamental rights impact assessment is integrated into that assessment. Accordingly, the fundamental rights impact assessment for high-risk AI systems used in the workplace is not eliminated but merged with the GDPR impact assessment framework.

[57] Mittelstadt, *ibidem*, 6-7, uses the concepts of "right to access" and "right to testing". Moreover, the A. (23-35) thinks that art. 79 ("*Procedure at national level for dealing with AI systems presenting a risk*") represents a strong enforcement mechanism under art. 77, by providing for the intervention of the national Market Surveillance Authority (MSA) in case of systems presenting a risk for fundamental rights.

[58] Mittelstadt, *ibidem*, 6-7, uses the concept of "right to explanation". In this case, the A. is more sceptical, identifying that the *AI Act* provides for such a right, but without specifying the meaning of the "explanation" required.

4. ...and in between? Equality bodies as connecting dots between the anti-discrimination legal framework and the *AI Act*

From an examination of the lists of *fundamental rights protection authorities* with special powers under the *AI Act* authorised by the governments of each Member State to act pursuant to art. 77 – and, consequently, entitled to exercise the *right to access* and the *right to testing* established therein – it emerges that national equality bodies are extensively represented. Their inclusion aims to ensure protection against and prevention of unacceptable risks that could undermine the right to equality and non-discrimination, which these bodies are specifically tasked to safeguard. Official data show that only seven Member States have not granted such authorization to any of the equality bodies operating at national level (Hungary, Italy, Luxembourg, Poland, Portugal, Slovakia and Spain), whereas twenty-six bodies have been afforded such power[59].

This finding appears even more significant when considered in the light of the broader set of legislative initiatives undertaken by the European institutions following the adoption of the *European Pillar of Social Rights*. Of particular relevance to the present analysis, this process has culminated in the return to *hard law* intervention in the field of anti-discrimination law, which had remained largely unchanged since the early 2000s: reference is made, in this regard, to the reorganisation and strengthening of equality bodies – originally established under the *Racial Equality Directive* – advocated by the European institutions through the adoption of two directives in this area (dir. 2024/1499/EU and dir. 2024/1500/EU)[60].

[59] *Fundamental rights protection authorities with special powers under the AI Act*, available at https://digital-strategy.ec.europa.eu/en/policies/fundamental-rights-protection-authorities-ai-act. No data are available for Norway. The list of authorised bodies includes: Austria - *Federal Disability Ombudsman, Ombud for Equal Treatment;* Belgium - *The Institute for the equality of women and men, UNIA;* Bulgaria - *Commission for Protection against Discrimination;* Croatia - *Ombudswoman of the Republic of Croatia, Ombudsperson of persons with disabilities, Ombudsperson for Gender Equality;* Cyprus - *Commissioner for Administration and Protection of Human Rights;* Czech Republic - *Public Defender of Rights; Denmark - Danish Institute for Human Rights;* Estonia - *The Gender Equality and Equal Treatment Commissioner;* Finland - *Non-Discrimination Ombudsman;* France - *Defender of Rights;* Germany - *Federal Anti-Discrimination Agency;* Greece - *The Greek Ombudsman;* Ireland - *Irish Human Rights and Equality Commission;* Latvia - *Ombudsman of the Republic of Latvia;* Lithuania - *Office of the Equal Opportunities Ombudsperson;* Malta - *Commission for the Rights of Persons with Disability*, *National Commission for the Promotion of Equality*; the Netherlands - *Netherlands Institute for Human Rights*; Romania - *National Council for Combating Discrimination*; Slovenia - *Advocate of the Principle of Equality*; Sweden - *Equality Ombudsman*.

[60] Council Directive (EU) 2024/1499 of 7 May 2024 on standards for equality bodies in the field of equal treatment between persons irrespective of their racial or ethnic origin, equal treatment in matters of employment and occupation between persons irrespective of their religion or belief, disability, age or sexual orientation, equal treatment between women and men in matters of social security and in the access to and supply of goods and services, and amending Directives 2000/43/EC and 2004/113/EC. Directive (EU) 2024/1500 of the European Parliament and of the Council of 14 May 2024 on standards for equality bodies in the field of equal treatment and equal opportunities between women and men in matters of employment and occupation, and amending Directives 2006/54/EC and 2010/41/EU. For an exam of the two recent directives, refer to Filì, *Le direttive gemelle (UE) 2024/1499 e (UE) 2024/1500 sugli organismi di parità*, in *DRI*, 4, 2024, 1243 ff; Borzaga, *Equality bodies e contrasto alle discriminazioni nei luoghi di lavoro: il nuovo quadro normativo eurounitario e le possibili implica-*

The involvement of equality bodies in the regulation of artificial intelligence, in the role of authorities responsible for the protection of fundamental rights, is consistent with the approach adopted by the European legislator for risk management under the *AI Act*: the process of identifying, managing and mitigating risks operates on multiple levels, engaging a plurality of actors with distinct functions, competences and positions within the relevant areas of intervention[61].

As anticipated, art. 77 of the *AI Act* confers a primary role on nationally authorised equality bodies within the governance of actors tasked with addressing the phenomenon of artificial intelligence and, in the case under consideration, algorithmic discrimination. The *right to access* to documentation provided for in art. 77 complements and is further reinforced by the provisions set out in art. 8 ("*Inquiries*") of the directives on equality bodies: as quasi-judicial bodies, they are entrusted with the power to conduct investigations into the existence of violations of the equal treatment principle, including the ability to ascertain the relevant facts through access to the information and documentation necessary to determine whether discrimination has occurred. In the context of algorithmic discrimination, this translates into their ability to request and obtain access to technical information concerning the functioning of AI systems[62]. Equality bodies, in light of their in-depth expertise in anti-discrimination law and the wide range of sectors in which they operate – not limited to employment – are well positioned to identify discrimination across diverse contexts, including highly technical and specialised ones. Pursuant to art. 77, they may consider the documentation provided to be sufficient or, conversely, deem it insufficient for the identification of potential discriminatory impacts. In the latter case, this may occur where the results of multiple fairness metrics addressing different performance gaps are absent, or where the groups affected by the AI system's intervention are defined too narrowly, thereby increasing the risk of concealing forms of intersectional discrimination[63].

More generally, equality bodies are entrusted with a wide range of functions and instruments which may prove particularly valuable in addressing the expanding phenomenon of algorithmic discrimination[64]. Among these, the equality directives confer the faculty to bring legal action regarding discrimination not only to individuals, but also to associations, organizations and other legal persons that have a legitimate interest in ensuring equal

zioni per l'ordinamento italiano, in *LPO*, 11-12, 2025, 727 ff.

[61] On the topic, Zappalà, op. cit., 56-60; Novelli, Hacker, Morley, Trondal, Floridi, *A Robust Governance for the AI Act: AI Office, AI Board, Scientific Panel, and National Authorities*, in *European Journal of Risk Regulation*, 16, 2, 2024, 3-4.

[62] Ceross, *Explaining 'by-desing' approaches*, cit., 13-14; Mittelstadt, op. cit., 6-7 and 19-21.

[63] Mittelstadt, *ibidem*, 37-38.

[64] Please refer to Biagiotti M., *Recent developments in the regulation of equality bodies in the European Union*, in *DLM International*, 1, 2025, 41-43. Furthermore, Capellà Ricart, *The role of European equality bodies to address algorithmic discrimination*, in *IJDL*, 24, 3, 2024, 2-20; Allen, Masters (eds), *Regulating for an equal AI: a new role for equality bodies. Meeting the new challenged to equality and non-discrimination from increased digitisation and the use of Artificial Intelligence*, Equinet Publication, 2020, 67 ff.

opportunities and equal treatment[65]. Specifically, equality bodies may – in application of national legislation – initiate proceedings on behalf of and in support of a victim or, alternatively, opt for collective actions[66], which appears to be a fundamental tool for effectively combating algorithmic discrimination, given that these systems typically harm entire groups of individuals. In general, the recognition of legal standing to these organisations has been welcomed by legal scholarship, primarily for two main reasons: firstly, it incentivises recourse to litigation – an area that remains significantly underdeveloped at the European level – and which is crucial for the effective realisation of equal opportunities and for the expansion of anti-discrimination protection itself[67]; secondly, the involvement of these bodies makes it possible to overcome certain physical and psychological barriers[68] that discourage or prevent victims from seeking justice in their own name.

In the algorithmic context, equality bodies can play a pivotal role through litigation. In particular, they can help in bridging the knowledge gap to understand the development of discrimination within AI systems, both through a more effective allocation of the costs and resources required for investigation and expertise, and by taking advantage of their substantive knowledge of anti-discrimination law. Furthermore, these bodies can rely on partnerships with a variety of actors, which can also prove to be fundamental in such a new area of intervention. In this respect, the new directives on equality bodies place strong emphasis on collaboration and consultation with actors at different levels and operating in various sectors, including data protection, labour law and industrial relations, thus involving both trade unions and employers' organizations[69]. Lastly, another reason why equality bodies can be highly effective in combating algorithmic discrimination through litigation is due to their capacity to use statistics and equality data[70] to demonstrate the unequal treatment of certain groups before the courts. As a matter of fact, equality bodies are used to employ equality data in their legal casework to ensure a correct and comprehensive as-

[65] Art. 7(2) of dir. 2000/43/EC; art. 9(2) of dir. 2000/78/EC; art. 17(2) of dir. 2006/54/EC.

[66] On the topic, Pirone, *Le azioni collettive contro le discriminazioni nel lavoro*, in *dirittifondamentali.it*, 2, 2020, 211-233.

[67] De Witte, *From a "Common Principle of Equality" to "European Antidiscrimination Law"*, in *American Behavioral Scientist*, 2010, 53, 12, 1721-1722, refers to the emergence of a *new demand for judicial enforcement* resulting from the introduction of legal standing also by these organizations.

[68] On the topic, Belavusau, Henrard, *The Impact of the 2000 Equality Directives on EU Anti-Discrimination Law Achievements and Pitfalls*, in Belavusau, Henrard (eds.), *EU Anti-Discrimination Law beyond Gender*, Hart Publishing, 2019, 20-23; Bello, op. cit., 1081-1089.

[69] Allen, Masters (eds.), op. cit., 2020, 67 ff.

[70] Art. 16 ("Data collection and access to equality data") of dir. 2024/1499/EU and 2024/1500/EU. Equality data can be defined as "any piece of information that is useful for the purposes of describing, analysing, reasoning about, and decision-making on the state of equality". On the topic, Ilieva, *Handbook on Identifying and Using Equality Data in Legal Casework*, Equinet Publication, 2024, 12 and 14-17. Moreover, "the information may be quantitative or qualitative in nature. It could include aggregate data that reflect inequalities or their causes or effects in societies. Sometimes data that are collected primarily for reasons other than equality-related purposes can be used for producing equality data". In order to be effective, these data must present several characteristics, such as: robustness and objectiveness; they must be systematically collected, reliable and valid; clarity and transparency must characterise their collection, and they must be comprehensive and representative of the sample, in a way to enable comparisons.

sessment of discrimination cases, as they provide contextual elements that are pivotal for the identification of unequal practices. Moreover, the use of this type of data can facilitate comparisons between different forms of treatment experienced by victims, thereby serving as evidence of discrimination, particularly in cases of structural discrimination affecting multiple individuals[71]. In such cases, the level of complexity involved in identifying and proving discrimination is especially high, similarly to the scenario faced with algorithmic discriminations[72].

5. Conclusive remarks

The contribution has been structured as follows. In the first place, we analysed the growing use of AI systems in the field of employment, focusing on their potential discriminatory effects on vulnerable workers. Afterwards, we focused on the in-depth analysis of how the European legal framework can efficiently address the phenomenon of algorithmic discrimination: firstly, we analysed the potential applications of the European anti-discrimination directives in the field; secondly, we focused on the analysis of the recently introduced *AI Act*. Finally, we considered the role of key institutional actors, in particular equality bodies, in addressing algorithmic discrimination and promoting effective protection against it. As a whole, anti-discrimination law provides fundamental concepts, such as direct and indirect discrimination, whose application to algorithmic discrimination is possible, yet hindered by the opacity of AI systems, the difficulty in obtaining evidence and the potential justification of indirect discrimination on grounds of algorithmic efficiency. In this context, it has become increasingly necessary to adopt an integrated approach combining anti-discrimination law with data protection law and the emerging regulatory instruments such as the *AI Act*, making effective intervention particularly complex. What is promising, however, is that the risk-based approach implemented by the *AI Act* operates in the *ex-ante* sphere – through prevention, data governance, transparency and human oversight – thus complementing the protection offered by anti-discrimination law, which primarily operates in the *ex-post* sphere of redress.

The common factor underlying the legislative governance of artificial intelligence and that of discrimination – both "traditional" and algorithmic – lies in the need for intervention across multiple, complementary and coordinated levels of action, capable of achieving effective, durable and collectively acceptable outcomes. From this perspective, it has been considered particularly relevant to examine how the only public actors established specifically for protection against discrimination and for the promotion of equality – namely,

[71] As a consequence, the detection of similar issues is easier, people victims of the same discrimination are interrelated and the potential for strategic litigation increase, and lastly, evidence of structural discrimination can be found.

[72] Ilieva, op. cit., 6-10.

equality bodies – may effectively play an essential role, one of renewed centrality, in understanding a phenomenon so complex as algorithmic discrimination. The inclusion of many of these bodies among the authorities designated for the protection of fundamental rights in several countries further confirms this expectation. Nevertheless, it will be necessary to await, on the one hand, the full implementation of the regulatory framework established by the *AI Act* and, on the other hand, the transposition of the two directives on equality bodies.